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ABSTRACT

This report focuses on the specifics of the curriculum and its related costs and the distribution of income and expenditures of 75 private 2-year colleges under the sponsorship of the National Council of Independent Junior Colleges. An initial assessment of the kinds of institutions studied and the methodology used in the analysis is followed by a look at enrollments, credit hours distribution, concentrations, courses, faculty, and class size. Costs are reviewed in terms of credit hours and student loads. The first section of the report concludes with a look at the relationship of cost factors to curricular variables. An attempt is made to assess those relationships that directly affect decision making and planning in these 2-year colleges. The second section of the report deals with the distribution of income and expenditure in the 75 colleges, and concludes with a brief analysis of income and expenditure ratios in the development office. The last section of the report comprises recommendations for ways to use the data to improve the future economic well being of private junior colleges in the nation. (Author/DB)

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A CURRICULAR AND FINANCIAL COST ANALYSIS OF THE INDEPENDENT TWO-YEAR COLLEGE OF AMERICA

by

L. Richard Meeth

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FOREWORD

This study of the curricular and financial behavior of a representative sample of the independent two year colleges in the United States was commissioned by the National Council of Independent Junior Colleges and funded by a grant from the Fund for the Improvement of Post Secondary Education. Appreciation is expressed to Mr. Richard Witter, Director of the NCIJC for his cooperative spirit and generous help during this project. Unfortunately, as important as a cost analysis is, only 75 colleges took advantage of the funded offer to study up to 100 colleges. Without Mr. Witter's urging this number would have been even lower.

Dr. David Spence served as the Associate Director of the project. He was an invaluable associate. Without his patience, ability to work with a wide variety of college administrators and insights this project could not have been completed nearly as well. Mr. Larry Burke served as the computer expert, designing the programs which produced the master tables and other basic data. I am deeply grateful to him and the nine other graduate students at the State University of New York at Buffalo who did the basic analyses of the raw data from the colleges. Finally I appreciate the fine work of the two secretaries, Mrs. Jackie Rance and Mrs. Pat Rederer, who have typed endless tables and manuscripts. These people have been an excellent working staff. It is always sad to see the end of a project because it also means the end of many meaningful relationships.

Hopefully, this report will stir other colleges to do cost studies of themselves and will call the attention of higher educational leaders to the very viable presence of the independent junior colleges. They are alive, some are poor, many are healthy but all want to see the 1980's.

L. Richard Meeth

INTRODUCTION

During the past decade hundreds of studies have been made of the various segments of American higher education. The Carnegie Commission on Higher Education, The American Council on Education, The Association of American Colleges, The Council for the Advancement of Small Colleges and numerous other agencies have published reports describing and analyzing aspects of colleges and universities. Only one segment of American higher education - the independent two-year college has not been fully analyzed in the literature. These institutions seem to be more than "invisible" and "forgotten" as far as the mainstream of educational research is concerned. And yet they represent a viable group of institutions in the private sector of higher education.

This report focuses on the specifics of the curriculum and its related costs and the distribution of income and expenditures in 75 private two-year colleges under the sponsorship of the National Council of Independent Junior Colleges. An initial assessment of the kinds of institutions studied and the methodology used in the analysis is followed by a look at enrollments, credit hours distribution, concentrations, courses, faculty and class size. Costs are reviewed in terms of credit hours and student loads.

The first section of the report concludes with a look at the relationship of cost factors to curricular variables. An attempt is made to assess those relationships that directly effect decision

making and planning in these independent two year colleges. The second section of the report deals with the distribution of income and expenditure in the 75 colleges and concludes with a brief analysis of income and expenditure ratios in the development office. The last section of the report comprises recommendations for ways to use the data to improve the future economic well being of private junior colleges in the nation.

The quantitative aspects of the educational effort reviewed here review only one year of institutional history. In order to make sound judgments within a single institution it is important to look at data for a minimum of three years, perhaps even five. The linear view, instead of comparing with other colleges across the nation for a single year, can give administrators and faculty a better picture of institutional movement and provide a more meaningful basis on which to project the next three to five years.

Colleges Studied

The 75 institutions which participated in this study are established, reputable, independent, and church-related colleges offering the Associate of Arts and, in some instances, Associate of Science degrees. At the time of study 17 colleges were not accredited by a regional accrediting association. The colleges are spread across the nation: 33 from the northeast, 11 from the midwest, 4 from the west and 27 from the southeast. The development of independent two-year colleges has never been great from the middle of

the nation westward and so the sample of institutions parallels the institutional population throughout the nation. Fourteen of the institutions are Roman Catholic. Twenty-eight are Protestant, or if not affiliated with a particular denomination, based upon a strong religious commitment. Thirty-three institutions maintain no religious ties and are classified as independent. There are two black colleges in the group. Thirteen colleges operate on a quarter system, one has a modular calendar, the remainder follow a semester system, although a number of the schools have a January term.

Although 21 institutions were not members of the National Council of Independent Junior Colleges, the institutions were self selected for the study on the basis of an invitation from the National Council to all 250 independent junior colleges in the nation to participate in the project free of charge under a grant from the Fund for the Improvement of Post Secondary Education.

Methodology

The methods of investigation employed in this analysis included collection of data from questionnaires and catalogs, a survey of audits and other finanacial reports, compilation of statistics based on information provided by questionnaires, followup telephone conversations and verification of data through visits to four institutions. Presidents, deans, registrars, business officers and faculty in the 75 colleges assisted in the collection of the necessary information based on six forms sent to each college.

Each institution was given a set of organized data about itself which it could use in long-range planning and day-to-day decision making. Colleges of the same general size were grouped on large tables so that decision makers could compare themselves with similar institutions in order to get a sense of how they stood nationally. Approximately 21 different tables with multiple data on them were prepared for each college and a set of 15 tables with national norms for all institutions in the study were sent to each college. The total package was interpreted for various members of the administration, faculty student body, trustees, alumni in four regional workshops in which all participating colleges had the opportunity to discuss the nature and meaning of the tables prepared and to correct errors which had developed either from misunderstanding information needed, or from mistakes made by project staff in the preparation of the tables.

Questionnaires sent to each institution asked for the name of each course taught in 1972-73; the name and rank of the instructor of each course; whether he was a full-time instructor and if not the percent of full-time equivalent; the number of students in each class, laboratory or section of every course; the number of credits for which courses were offered; the full-time equivalent enrollment for the year, based on fall figures; tuition charges and other fees; extensive breakdown of the educational income and expenditures; and a general statement of total income and expenditures. Each college, in addition, was asked to list salaries and benefits for the teaching faculty during 1972-73.

The analysis of curricular offerings is based on courses actually taught in 1972-73, not those listed in a catalog or in a registrar's office which did not materialize due to limited enrollment or alternate year registration. Faculty were included only if they were actually present on the campus during the 1972-73 years; faculty on leave or sabbatical were not counted.

Discrepancies inevitably occur between the figures an individual college gathered about itself and those presented in this report. These differences result in part from difficulty in deciphering data supplied by some colleges, but perhaps in greater part from the systems used to group selective information. The subject classifications used in this analysis, for example, do not always correspond to college departments. Subject classifications are based upon the most common distribution presently used among two-year colleges according to the American Association of Community and Junior Colleges. When colleges submitted data based on their administrative organization, faculty time, student time and cost were divided and allocated according to the subject classification exhibited in this report. Each college in the study can regroup the subjects presented here into any departmental or divisional organization and have an accurate picture by administrative unit for that institution, although comparison with other schools would not then be possible.

All participating colleges did not respond to every aspect of the analysis, nor was every category in the project appropriate to every institution. Many subjects were not offered at all schools,

particularly in the career area. All comparative tables, however, are drawn from individual tables prepared for each institution, and all data have been reworked to present a national profile useful to a wide range of schools. Tables in this report list only the subjects offered by most colleges examined. Totals for subject areas include all subjects offered and taken in the colleges, even though the specific discipline is not listed. The tables divide colleges into five categories to reflect size differences and to enable other colleges to compare themselves more accurately. Colleges are arranged in groups under two hundred students, two hundred to three ninety-nine, four hundred to five-ninety-nine, and over six hundred which more appropriately might be labeled six hundred to one thousand since only six colleges exceeded a thousand students.

The credit hour is the common denominator for most of the analyses. The credit hour is not the only or the best unit of measure that could be applied since it leaves out many other aspects of the educational process such as faculty effort. But the credit hour is the most universal, the most transferable and consequently the easiest unit to use for comparative purposes. An institution undertaking a cost study was strongly urged to develop units of measure for other aspects of the teaching-learning process - such as committee assignments, advising of students, and rate of learning - which the credit hours does not touch.

The thirteen colleges on the quarter system are included in the master tables in this report but are adjusted to fit the semester pattern. When they were assessed initially, they were separated in

order that they might compare themselves with each other. These institutions have been merged with a larger group in order to eliminate an inordinate number of statistical tables and to give a broader picture of private two-year higher education.

Several special problems of methodology need explanation at the outset. Physical education was lifted out of the analysis because it was difficult to determine the ways in which colleges perceived this activity. Colleges occasionally merged physical education costs with inter-collegiate education costs or intra-mural programs. Faculty in physical education sometimes served as inter-collegiate coaches, coordinated intra-mural programs or held other administrative positions such as athletic director, dean of students or admissions officer. It was difficult to determine whether credit was given physical education courses and whether physical education was an integral part of one of the academic divisions or relegated to the periphery.

Applied music also presented a special problem. All applied music was credited on faculty load in the ratio of one hour of credit for each three students per term and courses were counted the way the institution listed them. In applied music this makes quite a difference; for example, colleges that teach only strings, percussion, woodwinds and brass have considerably fewer different courses in applied music than those listing courses titled by each instrument in an orchestra.

Laboratories in the sciences also were credited on the basis of three hours lecture plus laboratory equals four hours of faculty load.

For students, laboratories and music lessions were given the credit established by the school. All January inter-terms were counted as part of the offerings of the second semester. This was an arbitrary decision as were some of the other judgments listed here. In order to compare institutions an arbitrary decision was required which might not be defensible in any given institution. Individual colleges can adopt the judgments made here and feel reasonably secure, since every effort was made to choose the allocation method commonly accepted among the largest number of colleges.

COST OF CURRICULA

Although this section deals with only a limited number of possible variables in the academic program in the two-year college, the feeling existed among schools participating in the project that the most significant variables were treated - with the exception of an induced course load matrix. An induced course load matrix is the distribution of individual students in courses outside their major department, the knowledge of which is important in planning and has a great effect upon the allocation of costs to a particular department or program unit of a college. A department may not be responsible for the program or the students for which it is charged. An induced course load matrix is quite difficult to do comparatively and is very expensive since the record of each individual student must be analyzed. Each college in the project is urged to take the second step and perform the induced course load analysis.

Student Enrollments

Most two-year colleges want to be larger than they are. The answer to the question "How large should we be?" has an immediate bearing on the quality of the education offered and certainly has a lot to do with the cost. The colleges in this study varied considerably in full-time equivalent enrollment for the 1972-73 academic year ranging from thirty-four to 1209 students. Twenty institutions enrolled fewer than 200 students; 28 ranged between 200 and 399; 15 ranged between 400 and 599; 12 institutions exceeded, but only two of these institutions had more than 1,000 students. Enrollments for all institutions averaged 392.

Student enrollment by subject is a basic variable with which this study began. Enrollment distributed within each subject at different colleges portrays the diversity of institutional electives and requirements taken by students and forms the basis for developing credit hour and class size analysis.

The mean average ratio of faculty to students was 1:16.2 for all colleges although it ranged from 1:29 to 1:35.3. Faculty student ratio is directly related to institutional size ($a=.001$). As colleges grow larger, the number of students per faculty member increases. A minimum ratio of faculty to students may be established in order for colleges to offer what is generally conceived to be a broadly based, comprehensive two-year college curriculum. Once established this ratio need not contract as colleges grow. The variations in faculty-student ratio in the two-year independent colleges means

great differences in the unit cost of instruction and there is little reliable evidence that the quality of learning rises with the decline in the number of students per instructor. Caution must be exercised, however. Simply increasing the ratio of students per faculty member may not reduce costs meaningfully if the method used includes removing only junior level faculty who receive the lowest pay and eliminating classes enrolling five or fewer students. Differences in the costs of junior and senior faculty and small and large classes cause considerable variations in the costs of expanded or contracted student-faculty ratios.

Credit Hours Distribution

The credit hours taught and taken are the second and third critical variables analyzed. Table I details the percentage of offerings by subject area. Credit hour figures represent the total for all courses, including sections and repeated courses. The top half of the table pictures the distribution of course credit hours taught; the bottom half shows the courses taken by students measured in credit hours. Time spent by faculty in the humanities is double the time spent by the faculty teaching the natural sciences which means that colleges must spend twice as much faculty time for instruction in the humanities as they do in the natural sciences. Paralleling faculty time, the amount of student time in the humanities is about twice the amount of time students spent in the natural sciences. The social sciences enroll a very small proportion of students in

TABLE I

Percentage of Offerings by Subject Area
1972-73

	All Colleges			Under 200			200 - 399			400 - 599			600 & Over		
	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
In Course Credit Hours															
Natural Sci.	18.6	19.2	4.2-52.2	21.3	25.8	6.3-52.2	17.2	17.2	5.9-28.5	17.3	18.7	6.4-34.3	20.3	21.2	4.2-24.9
Social Sci.	17.1	16.9	5.2-37.3	17.4	16.5	5.2-31.6	19.4	18.5	7.8-37.3	15.8	16.6	7.3-24.8	15.8	17.0	6.0-25.5
Humanities	41.8	44.0	7.1-74.1	42.0	44.4	11.2-65.3	46.5	45.5	32.4-74.1	42.9	41.7	17.3-70.8	35.3	43.2	7.1-48.2
Career	22.5	16.9	1.3-69.1	19.3	16.8	1.3-69.1	16.9	15.9	2.6-49.3	24.0	24.1	2.9-60.7	28.6	17.6	11.2-63.6
	100.0			100.0			100.0			100.0			100.0		
In Student Credit Hours															
Natural Sci.	20.5	20.9	2.4-53.8	23.7	24.0	4.8-53.8	16.9	17.1	4.9-30.0	19.2	20.6	7.6-35.7	23.2	23.2	2.4-30.5
Social Sci.	21.3	23.5	6.7-44.9	21.5	22.0	7.4-41.8	24.2	24.8	11.7-44.9	21.3	21.5	12.7-27.9	18.9	23.2	6.7-34.2
Humanities	36.8	40.7	3.3-65.6	37.9	41.6	3.3-65.6	42.4	43.9	25.1-63.8	37.6	38.0	21.2-63.2	31.4	37.9	7.9-47.3
Career	21.4	14.9	.7-63.4	16.8	9.2	1.5-51.9	16.5	11.2	2.1-49.9	21.9	21.4	.7-45.4	26.5	14.9	8.4-63.4
	100.0			100.0			100.0			100.0			100.0		

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two-year independent colleges but students spend considerably more time in social sciences than do faculty indicating large classes.

As junior colleges go, the independent institutions offer considerably less career study and students take considerably fewer career programs than in public community colleges. The private institutions concentrate much more of their energy on general education and liberal arts study leading to transfer to four-year colleges than is the case of their public counterparts. Consequently, the distribution of offerings much more closely parallels four-year private institutions than it does two-year public institutions.

Career offerings in the independent colleges, however, exceed career offerings in four-year institutions; in some cases doubling that emphasis in the two-year college over the four. The average amount of time spent by faculty and students in career subjects is about five percent more in the two-year colleges than in the four-year private colleges.

Analysis of certain subject areas within an individual institution is obscured by the collective table. When institutions are compared individually, greater differences become evident. A college, for instance, that devotes 52 percent of its total educational program to the natural sciences and only seven percent to the humanities is considerably different from a college that devotes only 4.2 percent of its total program to the natural sciences and 74 percent to the humanities. Neither distribution is "good" or "bad." If colleges have achieved a particular balance in their program through

conscious application of their aims and philosophy, then the distribution more accurately reflects their ability to pay for it. This is likely to be the case in colleges with high proportions of faculty and student time in career subjects, ranging in these institutions as high as 69 percent of faculty time and 63 percent of student time. If, however, colleges have drifted with the social or educational tide, they ought to take a critical look at their present distribution of faculty and student time. They need to determine if the probable direction of development is the direction they wish the institution to develop in terms of objectives, types of students to be served, and resources available to provide for that constituency in the future, and bring the distribution of offerings and requirements for students into line with objectives.

Just as course credit hour means something different to different colleges student credit hour (what a student must do to gain credit toward graduation) also differs from college to college and even within one institution from department to department. What a student must do to gain one hour of credit in nursing, for example, may be quite different from what he must do in psychology or mathematics. Some of the more important variations resulting from local differences in interpretation of student credit hour depend upon the number of weeks in a semester, the number of times the course meets in a week, the number of minutes in each session, the amount of work required to gain the credit, and whether or not course hours or credit hours are used in that determination.

The mean student credit hour load in these 75 colleges ranges from 8.7 to 19.9 and averages 15. Student credit hour load is not a factor of institutional size and does not vary significantly except on the basis of the number of credit hours required for graduation, the limits placed upon the number of credit hours the students may take per term, and the amount of money those who take fewer or more courses than a specified range must pay per credit hour. These three factors bear directly on the number and variety of courses that students select and condition the average student credit hour load in each school. For instance, in those colleges that allow a credit hour range unaccompanied by a tuition increase, students commonly accumulate more credits than are required for graduation or graduate in fewer than four semesters. This practice may be desirable but two questions of educational propriety can be asked: "Is it better for students to study more broadly among the curricular offerings or concentrate in fewer subjects?" and "Is it appropriate for students who take fewer hours to subsidize those who choose to move more rapidly through the program?" Questions of institutional economy also can be asked in the same regard.

When institutions are viewed individually in terms of the distribution of student credit hours taken, the relative emphasis on various subject matter areas studied by students is revealed. The distribution of instruction which students in one college received is quite different from what students in another college got and calls into serious question the universal nature of so-called

general education. If students in one college spend 63 percent of their time in career subjects and in another institution spend 65 percent of their time in the humanities (the balance being distributed among the other areas in both cases) they are getting quite a different general education program. Similar diversity exists among most of the institutions studied. General education is by no means universally understood by faculty of students in either two-year or four-year private colleges and what is nationally recognized as a liberal arts degree may be radically different from college to college.

Concentrations

Both the number of different concentrations and the distribution of students among the various concentrations bear careful consideration. In these small colleges the number of different concentrations per institution ranged from 0 to 27 and averaged nine. The range of concentrations in all colleges reporting is comparable to the range in private four-year liberal arts colleges. The number of concentrations offered is not related to the size of the college. 27.7 percent of the schools have a concentration for every other faculty member and 42.5 percent have a concentration for fewer than every third faculty member teaching in 1972-73. If a college enrolls fewer than 1,000 students and has 27 possible concentrations, that college has an average distribution of about 30 students per concentration or approximately 10 graduates per year. Taking into account the uneven distribution among concentrations, the large number of freshmen who never finish points up the small classes and consequent high costs which must exist when so many concentrations are allowed.

The natural and social sciences each account for an average of two concentrations; humanities has 2.8 average and the career area with 4.2 average has the most. Only a small proportion of the colleges have a physical education concentration and about half have no natural science or social science concentration. How many fields of study does an independent two-year college need? Probably not as many as the faculty think and certainly no more than one for every three or four full-time equivalent faculty members actually teaching. (See Table II.)

An analysis of concentrations declared by students is not highly reliable for a single college. Since a declared concentration is not always the final choice, and since each college contains a large group of students who many not declare a concentration, the distribution becomes doubtful. A better estimate for planning within an institution may be a linear view of the number of students graduated over a five-year period in each of the concentrations, accompanied by the number of all students currently enrolled by concentration. A comparison of these two documents would help establish or challenge the validity of the statement of declaration.

On the other hand, a statement of declared concentrations is very valuable for portraying national trends. The validity question raised within a single institution becomes less important when all colleges are taken together. Subjects fields in which students across the nation exhibit the greatest and the least interest, for example, can be helpful to an individual college in planning new concentrations or phasing out existing ones.

TABLE II

Number of Different Concentrations Offered in Subject Areas*
1972-73

		All Colleges			Under 200			200 - 399			400 - 599			600 & Over		
		Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
Natural Sci.	N=24	2.1	2	0-6	2.0	2	0-3	2.5	2.5	0-4	1.9	1	0-5	2.3	2	0-6
Social Sci.	N=20	2.2	2	0-5	2.2	3	0-4	2.3	2	0-4	2.1	4	0-5	2.3	1	0-5
Humanities	N=44	2.8	2	0-9	3.0	2	0-6	2.3	2	0-5	3.0	2	0-7	3.0	2	0-9
Career	N=46	4.2	3	0-10	3.3	3	0-9	2.8	3	0-6	5.4	6	0-10	5.5	7	0-8
Subtotal	N=47	8.7	7	0-26	7.9	4	0-20	6.1	6	0-14	10.5	10	0-26	10.8	8	0-26
Physical Ed.	N=18	1.0	1	0-1	1.0	1	0-1	1.0	1	0-1	1.0	1	0-1	1.0	1	0-1
Grand Total	N=47	9.1	7	0-27	8.5	4	0-21	6.3	6	0-15	11.0	10	0-27	11.1	8	0-27

Note:
N= The number of colleges reporting concentrations in that area.
Zeros counted for purposes of the range only. Median and mean determined without zero colleges added in.

The distribution of students by subject closely parallels the distribution in four-year private liberal arts colleges. The largest area in the natural sciences is biology closely followed by mathematics. Psychology and history are the largest in the social sciences followed by sociology. English is the largest concentration in the humanities although it is declining rapidly and in the career area nursing, applied health and business related subjects account for the largest number of concentrations.

Table III documents the percentage distribution of delcared majors by subject areas in the 75 colleges in 1972-73. The percent of concentrations in the natural and social sciences is quite low, in sharp contrast with the distribution in private four-year colleges, particularly in the social sciences which seems to be the growing area in undergraduate study. The career subjects account for an average of 66 percent of all student concentrations across the institutions although in some colleges its as low as 3 percent and as high as 100 percent. The proportion of students concentrating in career subjects clearly indicates the terminal nature of a number of the programs of two-year independent colleges and helps to substantiate the need for this kind of institution to continue to exist as a comprehensive unit in private education. None of the concentrations are related to institutional size. As colleges grow they do not necessarily have more or fewer students concentrating in career areas or in the traditional liberal arts area.

TABLE III

Percentage of Students Concentrating by Area
1972-73

	All Colleges			Under 200			200 - 399			400 - 599			600 & Over		
	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
Natural Sci.	5.5	9.6	.2-54.1	9.7	16.9	2.1-54.1	1.2	12.1	1.8-12.8	3.2	3.2	.2-19.7	11.6	9.7	2.6-32.9
Social Sci.	2.9	10.0	.6-62.1	5.3	11.9	2.6-62.1	4.0	20.6	9.2-26.5	4.4	7.6	1.3-23.3	.3	5.4	5.4-5.4
Humanities	25.2	22.7	1.5-100.0	27.9	24.7	3.4-100.0	39.3	34.4	10.6-87.3	20.9	14.4	1.5-61.0	24.2	7.0	1.8-62.1
Career	66.4	64.1	3.4-100.0	57.1	48.7	3.4-100.0	55.5	61.9	12.7-89.4	71.5	75.9	33.1-100.0	63.9	74.9	22.5-93.6
	100.0			100.0			100.0			100.0			100.0		

Courses Taught

Different courses taught is one of the more critical variables in the assessment of curriculum in small colleges. Table IV details the total number of different courses offered by subject in 1972-73. No sections and no courses repeated in both semesters are included. Every listing in this table constitutes a different course title and subject matter. The number of different courses offered by a college should be determined by the number necessary for a concentration, for contextual requirements, servicing of other departments, and for general education and some electives. Since each of these factors is fairly constant from college to college the number of different courses offered in a subject should also be fairly constant. Interestingly, however, the average number of different courses taught increases with total enrollment, indicating an unnecessary but positive correlation between the variety of instruction and the size of the colleges. Questions can be raised immediately as to why institutional size should make any difference in the variety of offerings necessary to provide an adequate two-year program in institutions which vary in size no more than approximately 1,000 students. Yet size is the only factor apparently related to any breakdown of the courses taught. One explanation is that the number of faculty, which is also related to institutional size, is a determinant of the number of different courses offered. Faculty work hard to provide each person with a variety of courses which he in particular wishes to teach. This usually means an increase in the number of offerings. Another explanation is that

TABLE IV

Total Number of Different Courses Offered in Selected Subjects
1972-73

Subjects	All Colleges			Under 200			200 - 399			400 - 599			600 & Over		
	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
Natural Sciences															
Biology	5.7	5.0	1-18	4.9	4.0	1-18	4.9	4.0	2-12	6.7	6.0	2-14	7.6	6.5	2-14
Chemistry	3.2	2.0	1-12	2.5	2.0	1-7	2.6	2.0	1-6	3.7	2.0	2-8	4.8	4.0	1-12
General Educ.	2.0	1.0	1-5	2.5	2.5	2-3	1.0	1.0	-	4.0	4.0	3-5	-	-	-
Geography	1.3	1.0	1-2	1.2	1.0	1-2	1.8	2.0	1-2	1.0	1.0	-	1.0	1.0	-
Geology	1.7	1.0	1-4	1.0	1.0	-	2.0	1.5	1-4	1.5	1.5	1-2	-	-	-
Mathematics	6.0	6.0	1-17	4.3	4.0	1-10	6.3	6.0	1-10	5.9	5.0	2-14	8.5	8.0	2-17
Physics	3.2	3.0	1-10	3.0	3.0	2-4	2.5	2.0	1-5	3.1	3.0	1-5	4.3	4.0	2-10
Total:	16.9	16.0	2-34	12.9	13.0	2-29	16.1	16.0	6-29	18.9	17.0	7-33	23.3	27.0	4-34
Social Sciences															
Economics	2.3	2.0	1-6	1.6	2.0	1-2	2.6	2.0	1-6	2.3	2.0	1-4	2.3	2.0	1-3
General Educ.	2.8	2.0	1-7	5.0	5.0	3-7	2.5	2.0	1-6	1.7	2.0	1-2	3.0	3.0	-
History	4.9	4.0	1-16	3.8	4.0	2-6	5.0	5.0	1-11	5.9	5.5	2-16	5.0	4.0	1-10
Political Sci.	2.2	2.0	1-6	1.4	1.0	1-3	2.5	2.0	1-5	2.3	2.0	1-6	2.2	2.0	1-5
Psychology	3.7	3.0	1-9	2.9	3.0	1-6	4.7	4.0	2-9	3.2	3.0	1-7	4.0	4.0	1-9
Sociology	3.7	3.0	1-14	2.8	3.0	1-7	4.7	4.0	2-14	3.2	2.0	1-9	3.7	3.0	1-9
Social Welfare	1.7	2.0	1-2	1.0	1.0	-	2.0	2.0	-	-	-	-	-	-	-
Total:	15.7	14.0	1-41	11.0	11.5	1-18	18.6	17.0	7-41	16.3	14.0	10-30	16.6	15.0	5-28
Humanities															
Art	8.2	6.0	1-49	3.7	3.0	1-11	10.0	6.0	1-49	8.7	7.0	2-19	9.8	7.0	1-25
Drama	4.2	3.5	1-11	2.0	2	-	3.9	2.0	1-11	4.8	5.0	2-8	4.5	5.0	3-5
English	9.2	8.0	2-47	6.6	6.5	2-12	10.8	9.0	5-47	9.4	8.0	4-18	10.0	8.0	4-19
French	4.7	4.0	1-13	4.1	4.0	2-6	4.4	3.5	1-13	5.0	5.0	2-13	5.6	6.0	2-8
General Educ.	2.7	2.0	1-9	1.7	2.0	1-2	2.9	1.5	1-9	2.4	3.0	1-3	3.3	1.0	1-8
German	3.8	4.0	2-7	3.2	4.0	2-4	4.3	4.0	2-7	3.5	4.0	2-4	5.0	5.0	4-6
Greek	3.0	2.0	2-6	4.0	4.0	2-6	2.0	2.0	-	-	-	-	2.0	2.0	-
Latin	3.3	4.0	2-4	3.0	3.0	2-4	-	-	-	-	-	-	4.0	4.0	-
Music	10.3	6.0	1-63	6.4	4.0	1-29	9.0	7.5	1-22	13.1	9.0	1-40	16.6	11.0	2-63
Philosophy	2.5	2.0	1-8	2.1	2.0	1-4	2.4	2.0	1-5	3.0	3.0	1-8	2.6	3.0	2-3
Religion	4.8	4.0	1-19	4.8	3.0	1-19	5.6	5.0	1-17	3.9	3.0	1-8	4.1	4.0	3-5
Spanish	5.0	5.0	1-11	4.0	4.0	1-6	5.4	6.0	1-11	5.5	6.0	2-9	5.0	5.0	2-7
Speech	2.4	2.0	1-10	2.0	2.0	1-3	3.4	2.0	1-10	1.9	2.0	1-3	1.4	2.0	1-2
Total:	43.0	37.5	3-123	28.2	27.5	3-59	48.6	42.0	24-123	48.1	45.5	16-99	49.8	49.0	8-109
Career Subjects															
Accounting	3.4	2.0	1-9	1.7	2.0	1-2	3.2	3.0	2-5	3.8	2.0	2-9	4.4	5.0	2-7
Allied Health	6.4	5.0	1-17	2.3	1.5	1-5	5.5	5.5	4-7	8.6	10.0	1-14	11.0	11.0	5-17
Business Admin.	9.9	8.0	1-29	6.6	5.0	1-14	8.6	7.0	1-20	14.5	14.0	4-22	10.9	9.0	4-29
Communication	9.0	4.5	2-31	6.5	6.5	2-11	3.0	3.0	2-4	3.5	3.5	2-5	23.0	23.0	15-31
Education	4.1	2.0	1-16	2.9	2.0	1-7	4.7	3.0	1-13	4.3	3.0	1-16	4.3	3.5	1-9
Engineering	3.7	3.0	2-6	-	-	-	2.0	2.0	-	3.7	3.0	2-6	4.5	4.5	3-6
Library Sci.	5.7	6.0	1-9	4.5	4.5	1-8	8.0	8.0	-	4.0	4.0	-	6.5	6.5	4-9
Nursing	5.1	5.0	2-9	3.0	3.0	-	7.5	7.5	6-9	4.8	5.0	3-7	4.5	4.5	2-7
Nutrition	5.6	4.0	2-12	4.2	4.0	2-7	6.5	5.5	3-12	6.7	6.0	4-10	4.0	4.0	-
Retailing	8.6	7.0	1-19	8.0	.0	-	7.3	4.5	1-19	7.8	8.5	2-12	11.7	13.0	4-18
Secretarial Sci.	11.7	10.0	3-30	9.3	8.5	3-18	11.3	8.5	5-30	12.8	11.0	5-22	13.6	14.0	7-18
Social Service	6.0	5.0	4-9	9.0	9.0	-	4.5	4.5	4-5	-	-	-	-	-	-
Total:	28.3	20.0	1-301	13.6	11.0	1-34	22.8	18.0	2-55	28.5	28.5	3-55	64.8	35.0	19-301
Subtotal:	104.3	100.0	18-350	65.2	61.5	18-118	108.3	104.0	56-181	111.8	108.5	66-172	160.5	143.0	93-350
Physical Educ.	12.1	10.0	1-54	8.9	6.0	1-25	11.1	12.0	1-25	13.0	6.0	1-54	21.1	22.0	8-31
Grand Total:	113.7	104.5	18-350	72.3	66.5	18-135	117.8	113.0	71-196	121.6	112.5	70-214	168.5	156.0	95-350

faculty in two year colleges aspire to programs comparable to four year institutions and, consequently, offer more and more detailed concentrations in harmony with their graduate interests. As the number of faculty expand, the number of offerings expands. There is no pedagogical principle to support this inevitability. Many colleges with small enrollments offer twice as many different courses as do schools double their size.

Table V details selected subjects in six institutions. Why could College C with ten fewer students than College D offer a six course concentration in biology while College D required 14? How could College D feel that two courses were sufficient in history while College C required six? Why did College E, enrolling one fewer student than College F, feel seven courses in art were sufficient for a concentration while College F needed 18? Why in English was College C able to offer an adequate concentration with five courses when it required 17 courses in College D? And why in Business Administration was College A able to offer a concentration with seven courses when College B, enrolling exactly the same number of students, required 21 different courses? Or, 14 in College E contrasted with 49 in College F? These relationships can be seen by looking at the total number of different courses offered in these three pairs of colleges. One college in each pair offers approximately a third more courses than the other with almost exactly the same enrollment.

Although this study does not pretend to explain or justify these variations it does raise serious questions concerning the size of

TABLE V

Courses Offered in Selected Subjects in Six Colleges
1972-73

College Code Enrollment	A 338	B 338	C 516	D 526	E 1208	F 1209
Natural Sciences						
Biology	4	9	6	14	6	6
Mathematics	4	5	-	3	12	12
Social Sciences						
History	4	5	6	2	4	4
Psychology	3	9	2	2	3	1
Humanities						
Art	4	13	2	14	7	18
English	8	6	5	17	8	7
Music	6	19	2	2	24	18
Career						
Business Admin.	7	21	14	15	14	29
Other	58	63	36	63	94	61
Total	98	150	73	132	172	156

some program offerings. Inevitably the larger programs mean small classes, heavy teaching loads, and in the absence of large endowments, low salaries in these small colleges. The end result is a gradual deterioration of the quality of the educational program.

Several curriculum writers and economists in American education have suggested that four-year colleges need offer only two or three courses beyond the number required for a student major in any given year. It would follow that independent two-year colleges, in the natural sciences, social sciences, and humanities would need to offer only approximately half that number for transfer or general education. Thus, if a department of English in a four-year college requires 30 hours for a major, a department of English in a two-year college need offer no more than 15 hours excluding sections, general education courses not counted toward the concentration and contextual requirements for other areas of the institution. Since a full faculty load is normally 24 hours or eight courses a year, two to two and one half faculty members could adequately teach all the different courses and sections required for any program of English in an independent two-year college enrolling under 1,000 students. Additional faculty may be required for sections and general education courses of a specialized nature or as enrollment increases, but it is difficult to rationalize a broader program of different courses of study or more faculty per subject in the liberal arts subjects in independent two-year colleges of 1,000 or under. Since the student will take no more than 15 to 20 hours and since that number could be expanded by offering different

courses in alternate years, the private two-year college should not mimic the four-year college or university and try to cover all aspects of every subject if offers.

The situation is slightly different in the career subjects in that a number of these fields parallel four-year liberal arts college majors of a professional nature. Others are basic courses of study transfering into majors in four-year colleges. Thus, the formula cannot be applied in the same way it can in the liberal arts subjects but discussion certainly needs to be maintained about the number of different offerings. Using the four-year college formula in terminal career subjects would seem to be an adequate base for determining the number of different courses needed.

The problem of expanded offerings is further compounded when Table IV is related to the number of full time equivalent faculty per subject in each institution. In the natural and social sciences teachers in the smaller two-year colleges must be generalists, able to teach various subjects well and cover the full range of specialties within a discipline at the beginning level, while the larger institutions faculty can be specialists, teaching only one or two parts of a subject field. Hence, many colleges must find teaching assignments that neither require the professor to teach every aspect of the subject nor leave him bored by too limited a teaching assignment. This dilemma plus powerplays and the willingness of faculty to work beyond the normal load required of them, has caused the expansion of the curriculum in the two-year colleges to the point that administra-

tors find themselves forced to add faculty in order to cover courses listed in the catalog.

It seems curious that colleges enrolling no more than 1,200 students find it necessary to offer 350 different courses which is close to the average for four-year colleges of the same size. The average for all two-year independent colleges is 114 different courses which is the number Bowen and Douglas in their study "Efficiency in Liberal Education" recommended as the average number of courses for a small four-year liberal arts college. Thus, the two-year colleges seem to be imitating the four-year institutions in the total number of different courses offered and exceeding the number necessary for the level of education which they profess to offer by a considerable number of courses. Consequently, the costs are considerably higher and the classes smaller than they need be in order to provide the same level of education.

Faculty

In these 75 colleges the number of faculty for the first session of 1972-73 ranged from 4.3 in the smallest institution to 111.5 in the largest. The size of the faculty is positively related to the size of the institution. Not only the total number of faculty, but also the number of faculty in every major subject area increases as enrollment increases. Table VI lists the full-time equivalent faculty in selected subjects for the year 1972-73 in the 75 two-year independent colleges. Although faculty size is related to institutional size,

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TABLE VI

Full Time Equivalent Faculty in Selected Subjects
1972-73

	All Colleges			Under 200			200 - 399			400 - 599			600 & Over		
Subjects	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
Natural Sciences															
Biology	1.7	1.1	.3-6.0	.9	1.0	.3-1.8	1.3	1.0	.4-2.5	2.0	1.8	1.0-3.3	3.6	3.8	.6-6.0
Chemistry	.7	.6	.2-2.9	.5	.4	.3-1.0	.5	.4	.2-1.2	.8	.7	.2-1.8	1.2	1.0	.3-2.9
General Educ.	.9	.7	.2-3.0	.5	.5	-	.5	.5	.2-.7	1.9	1.9	.7-3.0	-	-	-
Geography	.3	.3	.2-.5	.4	.4	.3-.5	.3	.2	.2-.5	.2	.2	-	.4	.4	.2-.5
Geology	.6	.6	.3-1.0	-	-	-	.5	.4	.3-.8	1.0	1.0	-	-	-	-
Mathematics	1.5	1.0	.2-10.9	.6	.5	.3-1.4	1.1	1.0	.3-2.0	1.6	1.2	.2-3.5	3.5	2.8	.5-10.9
Physics	.8	.5	.1-7.7	.7	.8	.3-1.2	.4	.3	.3-.6	.8	.6	.1-3.2	1.5	.8	.2-7.7
Total:	4.3	3.3	.3-19.0	2.5	2.4	.3-10.6	3.2	3.2	.9-5.8	5.1	5.1	1.6-9.3	9.1	9.9	1.2-19.0
Social Sciences															
Economics	.5	.4	.1-1.5	.3	.2	.1-1.1	.5	.4	.1-1.0	.6	.5	.2-1.5	.8	.8	.4-1.1
General Educ.	2.0	.8	.1-11.7	4.4	.8	.7-11.7	1.0	1.0	.6-1.5	1.0	.8	.1-2.0	.5	.5	-
History	1.2	.9	.1-4.3	.7	.6	.2-2.0	1.0	.8	.3-2.5	1.3	1.2	.3-2.7	2.4	2.7	.1-4.3
Political Sci.	.5	.3	.2-1.9	.2	.3	.2-.3	.5	.5	.2-1.9	.6	.6	.2-1.0	.6	.4	.2-1.7
Psychology	1.1	1.0	.1-4.0	.6	.6	.1-1.3	1.1	1.0	.1-2.5	1.2	.9	.3-4.0	1.9	1.8	.8-3.0
Sociology	.8	.7	.1-2.7	.4	.3	.1-1.1	.8	.7	.2-2.3	.9	.8	.2-2.7	1.2	1.1	.5-2.0
Social Welfare	1.3	.3	.1-3.7	.1	.1	-	.3	.3	-	-	-	-	-	-	-
Total:	3.7	3.4	.3-10.7	1.8	1.9	.3-3.8	3.7	3.4	1.4-9.0	4.2	4.0	.4-10.7	6.4	6.7	3.6-9.1
Humanities															
Art	1.3	1.0	.1-7.9	.6	.6	.1-1.0	1.4	1.0	.3-7.9	1.8	1.3	.1-4.2	1.5	1.0	.4-3.3
Drama	.8	.6	.2-3.0	-	-	-	.7	.7	.2-1.5	1.0	.8	.2-3.0	.5	.4	.3-.6
English	3.6	2.9	.2-10.9	1.4	1.3	.2-2.7	3.4	2.9	1.3-10.9	4.5	4.3	2.2-9.0	6.8	7.0	2.8-10.6
French	.8	.6	.2-2.9	.8	.4	.4-2.9	.7	.6	.3-1.8	.7	.6	.2-1.6	1.0	1.0	.3-2.0
General Educ.	.9	.7	.2-3.8	.5	.3	.2-1.0	1.0	1.0	.8-1.4	1.1	.5	.4-2.4	1.1	.4	.2-2.8
German	.5	.5	.2-.8	.6	.5	.5-.8	.3	.3	.2-.5	.4	.4	.3-.5	.6	.6	.5-.6
Greek	.5	.3	.2-1.3	.7	.7	.2-1.3	.2	.2	.2-.3	-	-	-	.2	.2	-
Latin	.4	.4	.3-.6	.4	.4	.3-.6	-	-	-	-	-	-	.4	.4	-
Music	1.4	1.0	.0-5.3	.9	.9	.1-2.3	1.3	1.0	.2-4.6	1.9	1.3	.2-5.3	2.0	1.7	.0-4.0
Philosophy	.5	.3	.0-2.0	.3	.3	.1-1.0	.6	.5	.1-2.0	.7	.5	.1-2.0	.6	.4	.0-1.6
Religion	1.2	.0	.1-4.2	.8	.7	.3-1.9	1.2	1.0	.1-2.7	1.2	.8	.3-4.0	2.3	2.8	.8-4.2
Spanish	.8	.8	.0-1.9	.8	.6	.4-1.9	.7	.7	.3-1.3	1.0	1.0	.2-1.8	1.0	1.0	.0-1.8
Speech	.7	.7	.1-2.0	.4	.4	.1-.7	.7	.8	.2-1.7	1.1	.8	.3-2.0	.7	.8	.3-1.0
Total:	9.8	7.8	.3-27.3	4.5	5.0	.3-9.3	9.2	8.2	4.9-19.6	11.9	9.9	5.1-22.4	14.4	15.7	3.5-27.3
Career Subjects															
Accounting	.9	.7	.2-2.25	.6	.2	.2-1.6	.6	.5	.3-1.0	.9	.8	.2-1.8	1.15	1.0	.4-2.25
Allied Health	1.5	1.1	.2-4.3	.4	.5	.2-.5	1.5	1.4	.3-3.0	2.8	2.9	1.0-4.3	1.2	1.2	.6-1.8
Business Admin.	1.6	1.3	.2-6.0	.9	.7	.2-2.0	1.2	.9	.2-4.0	2.8	1.9	.4-6.0	1.7	1.8	.4-4.1
Communication	2.6	.6	.1-15.8	.8	.8	.3-1.4	.5	.4	.3-.9	.4	.2	.1-.8	8.9	9.1	1.7-15.8
Education	1.2	.7	.2-5.6	.7	.7	.2-1.4	1.5	1.1	.2-3.7	1.3	.6	.3-5.6	.9	.6	.4-1.8
Engineering	.6	.6	.3-1.0	-	-	-	.3	.3	-	.7	.8	.3-1.0	.6	.6	.5-.7
Library Sci.	2.1	.4	.2-11.5	.8	.8	.3-1.3	.4	.4	-	5.8	5.8	.2-11.5	.6	.6	.4-.9
Nursing	6.1	5.0	.2-12.6	5.7	5.7	.2-11.2	10.3	10.3	8.0-12.6	6.0	5.0	4.0-10.0	2.5	2.5	1.0-4.0
Nutrition	.9	.6	.2-2.1	.8	.6	.2-2.0	.9	.8	.5-1.5	1.2	1.0	.5-2.1	.6	.6	-
Retailing	1.4	1.1	.3-4.0	.9	.9	.5-1.3	1.3	.5	.3-4.0	1.3	1.4	.3-2.0	2.2	2.6	.9-3.0
Secretarial Sci.	1.9	1.6	.1-6.6	1.1	1.0	.1-2.8	1.6	1.1	.4-5.1	2.2	2.5	.6-3.3	2.7	2.3	1.4-6.6
Social Service	1.9	.7	.5-4.5	-	-	-	.6	.6	.5-.7	-	-	-	-	-	-
Total:	6.6	3.3	.3-73.9	2.8	2.0	.8-13.4	4.5	2.7	.3-18.7	7.5	5.9	.7-17.7	15.0	6.9	4.0-73.9
Subtotal:	23.2	19.3	3.5-101.5	10.7	10.5	3.5-18.4	20.2	18.8	11.3-32.7	28.7	27.8	15.7-45.6	45.5	39.6	22.8-101.5
Physical Educ.	1.7	1.4	.1-10.0	.8	.6	.2-2.0	1.3	1.4	.1-3.0	2.3	2.0	.2-10.0	4.3	4.3	1.5-6.0
Grand Total:	24.8	21.3	3.8-101.5	11.4	10.5	3.8-18.4	21.4	20.2	13.1-33.7	30.5	29.3	16.0-54.9	47.8	41.8	22.8-101.5

faculty work load, known as teaching load measured in credit hours, does not increase or decrease in relation to institutional size. Teaching load likewise is not related to class size.

Table VII outlines the distribution of teaching load by percent. About 25 percent of the faculty in these institutions taught fewer than seven hours in the fall of 1972-73 and 23 percent taught 15 hours or more in the same semester. Faculty in the 75 institutions taught an average credit hour load ranging from size to approximately 16 with a mean average of 11.8 credit hours. This wide range of teaching loads for full-time equivalent faculty members in some measure indicates different institutional policies with respect as to how many hours per week faculty members should be in the classroom. But other factors also play a part in determining these figures. The teaching load of some faculty members, for instance, is lower because they also have administrative duties; the load of others is raised because they have temporarily assumed teaching responsibilities of faculty on leave. Unexpected registration may increase teaching assignments, the desire for research, the need for extra income, the love of teaching and poor or good teaching ability also affect loads. Careful administrative supervision is needed to insure that some members of the teaching staff are not excessively burdened while others carry an inequitably light load.

A subject division analysis of teaching load reveals that faculty in the natural sciences taught the lightest load while those in the humanities, the heaviest. The question can be raised whether insti-

TABLE VII

Distribution of Teaching Load by Percentage
For Full-Time Equivalent Faculty
Fall 1972

	All Colleges		
Credit Hours Taught	Mean	Median	Range
Under 7	24.7	23.0	2.3-79.7
7-8.9	8.4	6.1	0.0-61.0
9-10.9	16.0	12.5	0.0-53.4
11-12.9	21.4	18.5	0.0-51.8
13-14.9	6.7	4.8	0.0-37.5
15-16.9	17.0	11.8	0.0-75.4
17-18.9	3.1	0.0	0.0-28.2
19 and Over	2.7	0.0	0.0-14.0
Total	100%		

tutional differences in teaching responsibilities rest upon any objective studies of the effect of instruction on learning or indeed on any rational ground whatever. Certainly some of these institutions which turn out broadly educated citizens as well as alumni acceptable to four-year liberal arts colleges have above average teaching loads. More extensive analysis of teaching load is necessary to determine whether there is any relationship between the credit hours a faculty member carries and the quality of his teaching or whether there is a point beyond which the credit hours that a faculty member carries result in diminished learning in students.

Another way of measuring faculty work load is to assemble the total number of student credit hours produced by each faculty member in an academic year. This figure, commonly called productivity, averaged 464 credit hours per instructor among the 75 institutions. Average productivity per faculty member ranged from 205 through 927 credit hours per year. Productivity in the independent colleges in contrast to the four year colleges is not related to institutional size. Faculty members do not necessarily work harder in larger institutions in terms of numbers of students taught. A small faculty in a reasonably small institution of about 600 could work considerably harder than a large faculty in an institution of about 1,000. By judicious pairing of different courses and number of concentrations, by offering only the essential program of study needed by students, faculty can keep class size large and the productivity level high regardless of the size of the institution.

In return for their teaching in 1972-73 faculty members received an average salary of $8,815 and an additional $831 worth of benefits, for a total average compensation of $9,648, which is below the four-year college average compensation by about $1,000 for the same year. Like productivity, cash salary is not related to faculty work loads. Benefits do increase as colleges get larger but not sufficiently to cause total faculty compensation to be related to institutional size. There is obviously no cash benefit then in either credit hour work load or productivity in the larger independent, two-year colleges.

Since faculty compensation tends to be the largest single item in the educational and general budget of small colleges, the ratio between faculty salary and all other educational expenditures (called overhead) becomes important. This figure, representing the funds in addition to faculty salaries necessary to keep a teacher in the classroom, could be called "educational expenditures other than faculty salaries." However named, it is the only figure that can show the relationship between faculty salary, and all other expenses - such as plant maintenance, departmental expenditures, general administration, student services and the library - which enhance and supplement the work of the classroom teacher. For every dollar spent on faculty salary, an average of $2.30 was spent for all other educational areas in 1972-73. This overhead ratio on faculty salary ranges from $.90 to $4.80, indicating the great differences in allocation of institutional resources between faculty and other aspects of the educational program. The overhead ratio is not related to institutional size

but is more a factor of institutional management. Interestingly, the overhead ratio for two-year independent colleges is higher than the four-year college figure by about $.45 for every dollar of faculty salary.

Class Size

Recently there has been much discussion of the relative merits of small and large classes. Most research has been related to empirical measures of cognition with very little concern about student or faculty attitudes. Nevertheless, what research has been done has not produced an optimum class size for most efficient learning. Classes can be too small, so small that student interaction is not possible; but it is yet to be determined that information retrieval is reduced by a very large class. Particularly crucial to the amount of learning that students acquire is the faculty member's own attitude toward the size of class he teaches. If he is comfortable with a large class, students tend to learn more than if he is uncomfortable lecturing to a large group.

The 75 colleges in this study differed markedly in the average size of their classes. They ranged from a mean average of 10.4 to 55.8, with an average class size for all institutions of 20.7 students. This average exceeds the four-year private college average class size by only 1/2 a student. Considering the large number of small classes in the upper division level that four-year colleges must teach the difference is incredibly small.

There is a strong relationship between the size of the institution and size of classes (a=.01). Average class size in this study increases as the size of the institution increases in a continuous line throughout all the colleges of the study. The relationship points out a particularly acute problem for small colleges: to provide a modest curricular offering, those institutions under 500 will necessarily have a number of small classes and suffer an obvious economic penalty. To provide sufficient courses for few students, some colleges must maintain proportionately larger faculties then their sister institutions with larger enrollments and larger classes.

Table VIII distinguishes the percentage of teacher and student credit hours in the 75 colleges by class size. The figures in this table dramatically demonstrate the differences between the amount of time students and teachers spent in small and large classes. Classes with one to five students accounted for an average of 9.6 percent of the teacher credit hours (or time) but only 1.4 percent of the student time or credit hours. That is, about 10 percent of faculty time was spent instructing about 15 percent of the students. In classes with an enrollment between 6 and 10 roughly 13 percent of the faculty time was spent instructing 5 percent of the students. Grouping these together, about one fourth of the faculty time in independent two-year colleges is spent instructing less than 6 percent of the students. This practice is obviously very expensive and when not a part of a conscious effort should be seriously reviewed.

Some colleges have small classes by design. Visits to several of these schools elicited little conclusive evidence that any of the colleges

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TABLE VIII

Distribution of Staff and Student Time by Class Size
1972-73

	All Colleges			Under 200			200 - 399			400 - 599			600 & Over		
	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
In Teacher Credit Hours															
1-5	9.6	9.2	0-35.9	15.0	15.7	0-35.9	12.2	12.6	0-24.1	10.4	7.3	0-20.6	4.4	5.1	0-7.4
6-10	13.1	14.1	0-35.2	20.6	21.9	0-35.2	16.5	15.1	4.8-29.1	12.9	11.0	2.2-23.8	7.3	6.1	3.7-11.3
11-15	15.1	15.8	0-64.7	22.1	19.6	0-64.7	17.2	15.8	2.1-33.2	15.0	15.4	6.6-22.1	10.3	9.1	4.1-18.8
16-20	15.3	15.6	2.2-55.0	11.3	11.2	2.2-35.6	18.2	17.9	9.3-26.9	17.2	16.3	7.2-55.0	12.5	12.1	5.7-20.8
21-25	13.9	12.0	0-38.1	10.3	9.3	0-38.1	13.8	11.7	5.1-26.9	13.4	10.8	5.6-28.8	15.8	16.7	9.7-22.4
26-30	11.8	9.8	0-24.6	9.0	8.8	0-23.4	9.9	9.8	3.7-21.9	11.8	10.1	3.9-24.6	14.8	16.9	7.8-20.9
31-35	7.8	4.9	0-21.4	4.5	3.8	0-10.1	4.4	4.7	0-12.4	7.0	6.2	2.6-16.7	13.0	12.7	8.0-21.4
36-40	5.0	2.3	0-18.2	2.3	1.5	0-13.0	2.4	2.1	0-14.8	3.3	2.5	0-8.6	10.0	7.5	4.5-18.2
41-45	3.2	1.4	0-14.3	.9	0.0	0-4.5	1.2	1.0	0-6.6	2.8	1.9	0-11.2	6.2	3.5	.8-14.3
46-50	1.9	.5	0-1220.0	1.5	0.0	0-13.3	1.0	0.0	0-5.6	1.5	.6	0-6.7	3.4	1.4	0-1220.0
Over 50	3.3	.8	0-51.1	2.5	.2	0-51.1	3.2	.4	0-26.2	4.7	2.8	0-24.3	2.3	1.0	0-9.0
Total:	100			100			100			100			100		
In Student Credit Hours															
1-5	1.4	1.5	0-11.3	3.0	3.0	0-11.3	2.2	2.2	0-5.6	1.4	1.0	0-4.5	.6	.6	0-1.4
6-10	5.0	5.0	0-25.7	9.7	11.4	0-25.7	7.1	5.9	2.1-17.5	4.9	3.8	.9-13.4	2.3	2.0	1.0-5.1
11-15	9.2	10.6	0-43.4	16.7	15.6	0-43.4	12.0	12.2	1.0-25.7	9.6	9.3	2.2-16.3	5.1	4.3	2.1-12.3
16-20	12.5	13.5	1.7-34.6	12.0	11.3	1.7-23.6	17.3	17.3	7.3-34.6	13.5	13.5	5.8-33.7	8.6	8.3	3.5-19.7
21-25	14.9	15.1	0-60.6	13.8	13.8	0-60.6	16.8	16.2	4.3-30.2	14.6	12.1	5.9-29.6	14.2	15.5	8.3-22.5
26-30	15.1	14.4	0-32.0	14.7	14.0	0-28.3	14.1	14.6	5.0-27.3	15.2	12.5	2.8-32.0	15.9	17.5	7.6-25.4
31-35	11.9	8.5	0-26.7	8.5	7.8	0-19.8	7.2	7.4	0-15.8	10.8	8.7	3.0-25.5	16.8	15.3	8.7-26.7
36-40	8.8	5.0	0-25.0	5.1	3.4	0-24.3	4.7	3.7	0-20.5	5.4	4.6	0-11.3	14.6	9.8	8.6-25.0
41-45	6.1	2.6	0-21.6	2.3	0.0	0-10.8	2.8	2.5	0-10.3	5.2	3.8	0-17.0	10.0	5.6	1.4-21.6
46-50	4.3	.9	0-19.7	3.9	0.0	0-18.7	2.5	0.0	0-11.7	3.4	1.7	0-12.9	6.2	2.5	0-19.7
Over 50	10.8	2.3	0-77.2	10.3	.8	0-77.2	13.3	1.4	0-58.1	16.0	8.2	0-59.3	5.7	2.3	0-17.1
Total:	100			100			100			100			100		

in the study deliberately chose small classes. Instead, as a result of the number of faculty employed and the large number of different courses offered, they are forced to operate at a high cost and waste limited economic resources. Many of the two-year independent colleges in this study could increase the average size of their classes by one to five students without effecting the quality of the program; they could also reduce the number of faculty in the same proportion and consequently reduce the cost of instruction by $50,000 to $75,000 a year.

Table VIII shows that institutions also differ widely in the percentage of large classes they offer. Classes ranging in size from 41 to over 50 students absorbed about 1/5 of student time and were taught by approximately eight percent of the faculty. Balancing faculty time in small classes against faculty time and large classes, results in a reasonably equitable distribution. Economical large classes in basic courses can be offered without deterioration in educational quality. Even though seminars, tutorials, and small discussion groups have value, they do account for large expenditures and ought to be justified by demonstrable results in effective learning.

The aim of an analysis of class size is not to urge instituions toward the middle, but instead to make a conscious analysis of the range of size in terms of faculty and student time and to balance small classes against large classes in order to achieve an economical distribution.

Cost Related Factors

Table IX lists the institutional averages for some of the variables discussed in preceding sections and three of the variables to be discussed in then next section of the report. This table shows the

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TABLE IX

Cost Related Factors
1972-73

	All Colleges			Under 200			200 - 399			400 - 599			Over 600		
	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
FTE Faculty	25.4	21.8	4.3-111.5	12.0	12.5	4.3-19.9	22.0	21.6	12.8-36.5	31.3	29.4	16.2-55.1	49.1	42.9	22.9-111.6
Average Class Size	20.7	19.6	10.4-55.8	18.4	16.5	10.4-55.8	19.5	18.3	13.2 -34.4	22.1	21.5	15.0-36.9	25.3	25.4	19.4-29.4
Average Teaching Load	11.8	11.7	6.0-15.9	11.2	11.2	7.6-15.6	12.1	12.0	6.0-15.9	11.4	11.0	6.7-15.7	12.8	12.6	10.9-14.9
Average Faculty Productivity (in student credit hours)	463.9	441.7	204.8-926.7	397.7	343.0	204.8-926.7	460.0	442.6	288.0-861.1	454.3	455.9	216.0-683.7	607.1	554.2	508.1-756.0
Average Student Credit Hours Load (1st semester)	15.0	15.3	8.7-19.9	14.7	15.1	8.7-18.7	14.9	15.3	10.2-18.8	15.0	15.6	9.7-27.9	15.8	15.4	14.1-19.9
Faculty-Student Ratio (1st semester)	16.2	15.8	9.0-35.3	13.7	12.7	9.0-35.3	15.3	15.4	9.2-25.7	17.8	17.8	9.9-29.7	20.4	19.1	15.3-26.4
Average FTE Faculty Cash Salary	$8815	$8843	$4381-13894	$8249	$7993	$4381-13894	$8701	$8777	$6417-11356	$9103	$9112	$5648-11188	$9684	$9737	$7381-11112
Average FTE Faculty Benefits	$ 831	$ 730	$ 0-2328	$ 554	$ 563	$ 0-1272	$ 910	$ 820	$ 0-2289	$ 848	$ 786	$ 0-2328	$1129	$1166	$ 525-2103
Average FTE Faculty Total Compensation	$9648	$9662	$4381-14605	$8798	$8550	$4381-14605	$9608	$9646	$6820-13074	$9980	$9937	$5687-13978	$10804	$11169	$7907-13156
Overhead Ratio	2.3	2.1	.9-4.8	2.4	2.2	.9-3.9	2.4	2.3	1.0-4.8	2.3	2.0	1.3-4.6	2.0	2.0	1.0-3.1
Average Cost Per Student	$2135	$2115	$ 632-4407	$2293	$2168	$ 956-4302	$2324	$2175	$ 950-4407	$1958	$2080	$ 632-3052	$1678	$1490	$ 951-2956
Average Income Per Student	$1344	$1174	$ 244-2994	$1144	$1127	$ 244-2720	$1358	$1163	$ 377-2766	$1513	$1475	$ 591-2994	$1432	$1160	$ 830-2698
Percent of Expenditure Borne by Tuition & Fees*	62.1	61.3	.9-125.0	50.9	48.8	10.3-99.7	57.8	55.0	29.3-125.0	67.5	72.7	.9-106.0	84.3	84.6	57.8-108.0

*Excludes Unfunded Scholarships

relationship of various factors to institutional size and serves as a summary for this section of the report. These figures indicate a few trends but do not make any evaluations; they simply describe the 1972-73 behavior of a representative group of independent two-year colleges. Items listed on Table IX are the basic data needed for any cost analysis of the academic program. The fact that these figures coincide so exactly with corresponding figures for private four-year institutions substantiates the contention that private two-year colleges have much more in common with private four-year colleges then they do with their counterpart public community colleges. Hence, these data are descriptive for all of private education, both two and four-year.

RELATIONSHIP BETWEEN CHURCH RELATED AND INDEPENDENT COLLEGES

Because there are a large number of independent and a large number of church related two-year private colleges in this study, a special analysis was made comparing both sets of colleges in all areas described previously in this report. Some significant differences were noted between the church related and independent colleges.

The independent colleges are considerably more oriented toward liberal arts and the church related institutions considerably more oriented toward career programs. In the independent colleges, students take 4 percent more natural science, but 14 percent fewer hours in career subjects. Likewise, the independent colleges offered

20 percent more different courses than the church related colleges more evenly distributed among the liberal arts, while the church related colleges offered considerably fewer hours in the natural and social sciences and considerably more courses in the career area. The primary difference here, however, is that the independent colleges offer 20 percent more different courses than do their church related counterparts.

The independent colleges averaged five more faculty members per institution than did the church related colleges and likewise enrolled about 83 more students per average institution than did church colleges. Three percent more of the independent college faculty taught under seven hours and four percent more of the church related college faculty taught 15 hours or more. Thus, the independent college faculty did not work quite as hard in terms of credit hour load as did the church related college faculty. The independent colleges had slightly larger classes than did the church related colleges; 24 percent fewer classes under 10 in the independent colleges and about four percent more classes over 40 in the independent colleges.

Looking at the cost related factors in the independent colleges, the faculty was larger by about six persons per institution. The class size was larger by about three students per class, the faculty productivity was higher by 32 credit hours per faculty member, student load was higher by one hour per year, the faculty student ratio was higher by one student per faculty member, the salary in the indepen-

dent junior colleges was higher by $550 and the benefits by almost $300 for a total compensation in the independent colleges of $850 more than the church colleges paid. The overhead ratio correspondingly was higher by $.20 for every dollar spent on faculty salary. In the independent colleges cost per student was higher by only $275 while the income per student was higher than in the church colleges almost $600. The most startling difference was in the percent of expenditure borne by tuition and fees. The independent colleges received 17 percent more of their income from tuition and fees than did the church related colleges.

The distribution of total income and expenditure was approximately the same for both kinds of institutions, but the independent colleges received 17 percent more of their income from tuition than church colleges and 12 percent less of their income from gifts and grants. The church colleges were considerably more dependent upon church support as a source of income and consequently had a more diverse income base than the independent colleges. Finally, in the development office the church colleges raised about $3 more for every dollar spent than did the independent colleges, indicating that the development effort in the church colleges is considerably stronger overall and certainly more efficient than in the independent two-year colleges.

In sum, the difference between the two kinds of institutions tends to balance out with the larger independent schools having naturally larger staffs and somewhat higher costs than the church

colleges with their commitment to serve constituent groups and corresponding strength in source of income through church ties. Costs per student do not seem to be significantly different from one type of institution to another, indicating that the ultimate difference is not significant.

CURRENT OPERATIONS

The critical economic aspects of curricula, in addition to those already considered, include the cost per credit hour, cost per student and the percent of income paid by tuition and fees. Beyond the immediate cost of curricula, several relationships exist which will be explored in depth and the major variables and curriculum brought together in a cost relationship formula.

Cost

One way of viewing current operational costs of the curriculum is to assess the cost per student credit hour - based either on total faculty compensation or on faculty compensation plus departmental expenditures, which comprise the total direct cost of the educational program. Tables X and XI portray these breakdowns for the 75 institutions. Faculty cost per student credit hours depends upon the total compensation paid to faculty member, which in turn depends upon his rank and length of service and what it costs to hire him originally. It depends most, however, on the number of students taught in the

TABLE X

Faculty Cost Per Student Credit Hour
1972-73

	All Colleges			Under 200			200 - 399			400 - 599			600 & Over		
	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
Natural Sciences															
Biology	16.28	17.09	8.28-52.41	17.23	19.13	10.36-52.41	19.34	18.86	9.22-45.80	14.51	14.38	8.28-27.49	15.28	15.82	9.19-39.65
Chemistry	27.47	27.01	7.78-196.34	27.75	39.24	7.78-166.67	29.81	25.62	12.91-196.34	25.29	26.94	9.76-75.69	28.09	22.84	11.63-43.37
General Educ.	20.67	19.55	8.63-39.89	18.83	18.29	17.02-19.57	25.17	25.60	8.63-39.89	19.54	19.04	18.01-20.08	-	-	-
Geography	20.40	25.17	1.98-62.97	27.00	29.43	13.74-50.41	27.62	39.12	1.98-62.97	28.29	25.17	22.48-62.89	13.05	14.91	11.12-22.31
Geology	27.00	25.22	17.31-92.93	17.31	17.31	-	32.17	28.57	17.99-60.96	22.63	56.06	19.19-92.93	-	-	-
Mathematics	18.10	20.61	7.72-128.47	24.03	22.50	7.84-128.47	22.24	22.27	7.72-76.12	20.30	20.88	13.39-78.31	14.40	16.88	10.35-30.93
Physics	21.39	29.43	6.17-271.75	26.71	29.43	15.41-67.38	26.93	30.20	6.17-161.95	28.57	29.41	9.88-271.75	18.34	26.75	13.35-60.54
Total:	18.68	20.43	8.58-53.53	21.05	23.85	10.07-53.53	21.92	19.06	9.98-53.19	18.67	20.54	8.58-31.36	16.08	17.26	10.91-26.07
Social Sciences															
Economics	19.01	18.09	5.09-115.74	21.08	20.31	9.60-115.74	22.28	21.34	5.09-43.59	21.25	17.56	8.50-41.39	13.78	12.27	9.11-22.72
General Educ.	13.58	13.55	6.85-22.25	11.31	11.81	8.94-14.67	16.43	16.92	7.38-22.25	11.74	9.66	6.85-12.72	16.26	16.26	-
History	17.74	19.52	3.58-66.13	19.19	19.99	7.73-60.81	19.11	20.84	3.58-66.13	18.60	21.09	12.19-40.22	15.39	16.64	11.14-27.43
Political Sci.	18.99	19.87	5.68-80.66	22.70	25.99	6.84-80.66	23.55	22.25	9.59-69.30	15.67	17.29	5.68-61.63	14.20	14.87	8.54-24.50
Psychology	15.05	14.31	4.34-63.06	17.56	15.37	4.51-62.50	16.28	14.12	4.40-43.84	16.79	15.78	4.34-63.06	11.47	11.93	7.84-16.94
Sociology	16.47	16.72	4.87-47.95	20.00	22.81	6.67-47.95	17.57	16.05	4.87-35.55	16.65	15.68	5.26-37.74	13.49	15.04	8.42-26.29
Social Welfare	15.79	17.39	15.07-19.71	19.71	19.71	-	15.07	15.07	-	-	-	-	-	-	-
Total:	16.62	16.33	7.25-52.43	19.25	17.29	7.25-52.43	18.29	16.20	8.96-41.83	17.32	18.40	9.24-22.99	13.42	12.68	8.83-18.07
Humanities															
Art	26.43	23.66	8.59-132.18	25.40	23.61	9.62-78.56	30.28	25.14	11.93-90.79	27.77	27.68	9.76-132.18	18.95	20.75	8.59-32.27
Drama	30.83	32.04	8.99-129.40	17.61	17.61	-	38.25	45.39	8.99-129.40	26.88	28.08	18.87-42.26	29.72	31.84	14.16-90.94
English	19.77	18.46	6.77-314.59	20.39	18.37	6.77-42.67	23.22	20.31	10.38-314.59	18.62	18.12	10.45-29.63	17.01	17.43	10.83-26.25
French	40.62	40.93	16.54-111.22	41.93	55.82	25.36-65.40	52.29	52.08	16.54-111.22	43.84	40.50	20.45-108.00	25.31	31.85	19.04-64.97
General Educ.	13.65	23.65	5.73-81.29	27.57	72.88	23.65-41.53	13.27	26.72	5.73-81.29	13.38	17.78	6.54-35.68	11.24	13.37	9.83-35.82
German	42.20	51.94	8.92-210.33	52.23	67.45	28.31-210.33	39.73	39.31	34.93-51.94	46.79	84.49	20.50-132.88	25.17	22.05	8.92-35.18
Greek	47.28	41.76	11.29-98.32	48.72	41.76	11.29-78.60	59.26	63.86	29.39-98.32	26.21	26.21	-	79.60	79.60	-
Latin	49.77	43.42	36.79-70.25	56.65	56.84	43.42-70.25	-	-	-	-	-	-	36.79	36.79	-
Music	37.63	38.92	9.15-225.39	35.49	28.12	13.69-147.73	43.21	46.83	16.64-108.16	44.49	48.34	15.07-225.39	26.84	19.24	9.15-56.78
Philosophy	18.41	19.51	2.61-56.95	25.76	23.10	2.61-56.95	16.40	17.23	4.50-36.71	23.38	21.76	4.96-43.22	12.00	10.45	5.44-19.57
Religion	15.64	16.65	4.47-161.32	16.77	18.43	7.55-161.32	16.39	16.33	6.84-35.83	16.28	18.21	4.47-76.17	13.78	11.64	8.58-17.48
Spanish	33.74	40.15	6.87-582.19	42.71	42.58	17.92-84.29	35.39	48.27	6.87-582.19	41.24	39.89	10.42-155.67	23.11	25.00	14.28-39.26
Speech	20.43	21.66	5.95-50.06	18.12	18.46	5.95-48.23	22.91	21.14	10.31-50.06	20.94	22.70	7.84-35.14	16.61	22.18	11.88-32.06
Total:	22.82	21.54	8.85-54.97	24.63	21.15	13.95-39.47	25.46	25.74	8.85-54.97	23.50	22.58	15.44-33.38	18.57	17.68	11.24-26.30
Career Subjects															
Accounting	19.91	17.38	3.96-115.33	17.67	37.92	3.96-115.33	22.95	19.89	7.43-35.55	19.48	15.93	11.61-110.11	19.01	17.38	11.09-29.21
Allied Health	36.04	45.15	7.78-179.17	30.37	32.94	7.78-179.17	53.38	54.62	45.02-90.19	38.60	52.36	9.52-59.39	22.67	28.32	21.39-35.25
Business Admin.	19.63	20.39	5.22-83.81	24.13	26.47	12.37-83.81	22.07	23.59	9.43-60.74	20.63	23.43	8.82-53.49	16.09	13.50	5.22-24.70
Communications	15.75	21.06	10.72-41.62	32.29	37.78	33.95-41.62	26.44	26.40	17.32-35.48	11.10	11.95	10.72-13.18	14.57	19.16	13.52-24.80
Education	19.79	21.41	7.06-112.41	23.18	24.61	11.13-112.41	21.94	21.41	7.06-49.05	17.04	15.87	8.46-48.39	17.36	22.28	7.96-44.73
Engineering	33.37	35.36	18.03-45.19	-	-	-	44.52	44.52	-	39.25	32.94	18.03-45.19	26.06	29.87	21.95-37.78
Library Sci.	31.88	28.41	20.79-106.37	28.84	27.00	25.00-29.00	39.54	39.54	-	27.83	27.83	-	33.27	63.58	20.79-106.37
Nursing	49.04	45.37	31.43-96.06	96.06	96.06	-	35.98	36.29	34.30-38.28	41.77	43.96	31.43-62.37	69.33	66.61	62.22-71.01
Nutrition	33.89	30.19	12.80-142.73	51.27	57.43	12.80-142.73	26.84	26.08	16.44-41.49	35.20	37.24	17.53-40.09	17.50	17.50	-
Retailing	30.30	39.61	11.30-75.18	36.98	36.98	-	41.64	46.36	23.90-75.18	27.59	32.90	11.30-50.52	21.97	13.10	11.37-43.51
Secretarial Sci.	24.24	24.97	13.19-272.96	49.97	47.14	13.19-272.96	24.70	23.42	13.43-70.56	26.50	25.43	21.08-33.66	18.67	22.21	14.44-32.19
Social Service	47.00	48.84	30.20-84.21	30.20	30.20	-	65.02	66.52	48.84-84.21	-	-	-	-	-	-
Total:	26.59	26.24	8.08-272.96	37.74	35.12	8.08-272.96	27.12	23.73	13.12-42.52	27.18	26.50	9.17-44.54	23.71	18.51	13.04-35.65
Subtotal:	21.56	21.61	9.91-61.87	24.86	24.36	9.91-61.87	23.97	23.19	11.16-49.64	22.20	21.37	12.07-31.63	18.26	16.00	11.65-24.93
Physical Educ.	31.85	29.48	4.42-122.47	25.99	24.54	4.42-90.53	31.83	30.77	6.61-122.47	30.95	26.47	9.88-71.28	34.91	32.57	23.32-51.71
Grand Total:	21.87	21.84	9.91-61.87	24.89	25.01	9.91-61.87	24.03	23.92	10.79-51.70	22.47	21.53	12.06-31.64	18.82	17.58	11.93-25.53

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TABLE XI

Total Direct Cost Per Student Credit Hour
1972-73

	All Colleges			Under 200			200 - 399			400 - 599			600 & Over		
	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
Natural Sciences															
Biology	17.21	17.75	8.28-52.41	18.64	19.16	10.36-52.41	20.20	19.95	9.22-46.96	14.67	15.54	8.28-27.49	16.70	19.03	9.19-39.65
Chemistry	30.07	31.42	7.78-196.34	29.42	39.55	7.78-166.67	35.12	32.67	12.91-196.34	25.70	28.17	9.76-75.69	31.88	29.50	17.56-43.80
General Educ.	22.26	20.90	8.63-39.89	22.18	20.66	17.02-24.30	25.77	27.12	8.63-39.89	21.17	20.14	18.01-22.28	-	-	-
Geography	20.41	25.17	1.98-62.97	27.04	29.43	13.74-50.41	27.62	39.12	1.98-62.97	28.29	25.17	22.48-62.89	13.05	14.91	11.12-22.31
Geology	27.83	25.22	17.31-92.93	17.31	17.31	-	33.80	28.57	24.65-60.96	22.63	56.06	19.19-92.93	-	-	-
Mathematics	18.54	20.61	7.72-128.47	24.18	22.50	7.84-128.47	23.39	22.45	7.72-77.95	20.87	20.88	13.39-78.31	14.51	16.88	10.35-30.93
Physics	23.09	29.57	6.17-271.75	26.71	29.43	15.41-67.38	28.10	30.20	6.17-161.95	28.84	29.41	9.88-271.75	20.66	33.52	13.35-60.54
Total:	21.40	21.64	9.36-79.64	22.84	26.76	10.07-57.68	24.37	21.27	11.26-79.64	22.76	22.55	9.36-42.55	18.39	20.53	11.66-26.07
Social Sciences															
Economics	19.16	18.09	5.09-115.74	21.50	21.12	9.60-115.74	22.67	21.34	5.09-43.59	21.29	17.56	8.50-41.39	13.78	12.27	9.11-22.72
General Educ.	14.24	13.55	6.85-24.28	11.31	11.81	8.94-14.67	17.10	16.92	7.38-24.28	11.74	9.66	6.85-12.72	19.82	19.82	-
History	17.87	20.03	3.58-66.13	19.64	19.99	7.73-60.81	19.31	20.84	3.58-66.13	18.63	21.09	12.19-40.22	15.43	16.64	11.14-27.43
Political Sci.	19.09	19.87	5.68-80.66	22.76	26.18	6.84-80.66	23.67	22.25	9.59-69.69	15.67	17.29	5.68-61.63	14.45	14.87	8.54-24.50
Psychology	15.28	15.19	4.34-63.06	17.91	15.37	4.51-62.50	16.66	15.34	4.53-43.84	16.79	15.81	4.34-63.06	11.70	11.98	8.01-16.94
Sociology	16.76	16.77	5.08-47.95	20.76	23.28	6.73-47.95	17.97	16.06	5.08-36.26	16.82	16.30	5.26-37.74	13.60	15.04	8.63-26.29
Social Welfare	15.79	17.39	15.07-19.71	19.71	19.71	-	15.07	15.07	-	-	-	-	-	-	-
Total:	17.08	16.74	7.25-55.08	20.00	17.37	7.25-55.08	18.65	16.63	9.09-42.05	17.74	18.63	9.24-24.00	13.90	13.55	8.83-18.35
Humanities															
Art	28.22	24.92	9.45-132.18	26.65	24.40	9.62-78.56	31.71	26.14	11.93-92.50	30.07	30.68	9.76-132.18	20.80	20.75	9.45-36.28
Drama	32.83	32.40	8.99-129.40	17.61	17.61	-	39.97	45.39	8.99-129.40	28.85	28.76	20.01-42.26	32.22	31.84	14.16-106.28
English	20.02	18.62	6.77-319.10	20.51	18.50	6.77-42.67	23.49	20.77	10.38-319.10	18.80	18.20	10.45-29.63	17.33	17.61	10.83-27.06
French	41.00	40.93	16.54-111.22	41.93	55.82	25.36-65.40	52.57	52.08	16.54-111.22	43.84	40.50	20.45-108.00	26.30	31.88	20.23-64.97
General Educ.	14.82	23.65	6.08-81.29	27.57	32.88	23.65-41.55	13.98	27.66	6.08-81.29	15.41	17.78	10.98-35.68	11.24	13.37	9.83-35.82
German	43.37	51.94	8.92-210.33	53.14	67.45	28.58-210.33	39.73	39.31	14.93-51.94	46.79	84.49	20.50-132.88	28.58	24.80	8.92-40.69
Greek	47.39	42.08	11.29-98.32	48.90	42.08	11.29-78.60	59.26	63.86	29.39-98.32	26.21	26.21	-	79.60	79.60	-
Latin	49.93	43.42	36.79-70.66	56.89	57.04	43.42-70.66	-	-	-	-	-	-	36.79	36.79	-
Music	40.26	41.11	9.15-225.39	34.57	28.89	15.46-147.73	47.19	47.22	17.98-112.95	47.83	51.79	15.07-225.39	29.09	19.46	9.15-59.77
Philosophy	18.59	19.51	2.61-56.95	26.00	23.10	2.61-56.95	16.60	17.72	4.50-36.71	23.38	21.76	4.96-43.22	12.29	10.85	6.06-19.57
Religion	16.18	17.20	4.47-161.32	17.70	19.84	7.55-161.32	17.22	17.10	6.84-37.71	16.34	18.28	4.47-76.17	14.05	12.13	8.58-17.48
Spanish	34.22	40.15	6.87-582.19	42.92	42.58	17.92-84.29	35.74	51.02	6.87-582.19	42.11	39.89	10.42-155.67	23.54	25.02	14.28-39.26
Speech	21.37	22.44	5.95-52.88	22.48	23.75	5.95-37.88	23.80	21.14	10.31-50.06	20.98	22.70	7.84-35.14	17.33	22.18	13.72-32.06
Total:	24.13	22.71	8.85-70.85	26.05	21.61	13.95-70.85	26.65	25.89	8.85-55.93	24.83	24.83	15.74-35.30	19.92	19.89	11.24-27.46
Career Subjects															
Accounting	20.14	19.14	3.96-115.33	17.67	37.92	3.96-115.33	22.95	19.89	7.43-35.55	19.59	15.93	11.61-110.11	19.57	19.14	11.09-29.21
Allied Health	44.26	51.06	7.78-179.17	34.51	38.24	7.78-179.17	63.35	57.58	48.00-149.22	49.90	55.13	9.52-70.56	26.01	30.16	25.07-35.25
Business Admin.	22.31	23.79	5.82-83.81	25.71	26.74	12.37-83.81	23.84	24.05	9.43-64.16	23.12	26.10	8.82-53.76	19.75	16.29	5.82-30.84
Communications	25.33	29.49	11.04-88.19	32.29	37.78	33.95-41.62	26.44	26.40	17.32-35.48	23.08	49.62	11.04-88.19	25.01	24.91	24.80-25.03
Education	20.28	22.64	7.40-267.17	23.90	24.99	11.13-267.17	22.75	22.66	7.40-49.27	17.12	15.87	8.46-43.39	17.81	22.51	8.74-44.73
Engineering	40.56	43.03	18.03-47.06	-	-	-	47.06	47.06	-	39.25	32.94	18.03-45.19	43.17	43.03	42.74-43.32
Library Sci.	33.99	32.29	22.14-106.37	30.81	28.02	25.00-31.05	43.62	43.62	-	33.54	33.54	-	34.42	64.25	22.14-106.37
Nursing	62.42	50.58	34.72-162.55	162.55	162.55	-	39.68	39.97	38.13-41.81	46.99	49.38	34.72-72.50	75.77	75.80	75.75-75.84
Nutrition	37.86	33.41	15.53-164.13	59.12	57.43	15.53-164.13	28.90	28.01	17.07-45.51	39.29	37.95	26.75-44.53	20.22	20.22	-
Retailing	31.00	40.62	11.34-75.18	36.98	36.98	-	43.71	50.42	23.90-75.18	28.57	35.19	11.34-52.31	22.37	13.10	11.37-44.83
Secretarial Sci.	25.02	25.20	13.19-274.97	50.00	47.14	13.19-274.97	25.78	24.96	13.43-70.56	27.78	25.43	23.46-35.42	19.15	22.91	14.44-32.19
Social Services	57.46	53.26	47.30-86.26	47.30	47.30	-	68.36	69.76	53.26-86.26	-	-	-	-	-	-
Total:	30.31	27.47	8.08-274.97	50.91	37.32	8.08-274.97	29.16	24.46	13.12-45.08	30.40	27.44	9.17-49.19	26.66	22.17	14.27-37.36
Subtotal:	23.65	23.06	9.91-90.34	28.12	24.87	9.91-90.34	25.86	24.63	11.16-64.93	24.33	25.54	12.28-33.92	20.13	20.66	12.54-26.10
Physical Educ.	36.45	32.43	4.42-150.54	31.17	25.90	4.42-95.10	37.40	36.70	6.61-150.54	34.53	26.53	11.22-76.21	38.90	36.16	24.56-56.49
Grand Total:	24.05	23.19	9.91-90.34	28.21	25.51	9.91-90.34	25.94	25.44	10.79-67.35	24.72	25.54	12.27-33.90	20.79	20.66	12.86-26.90

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subject. The larger the number of students taught, the lower the cost per credit hour.

Faculty cost per credit hour in all institutions in the study averaged $21.87. This average is related to institutional size, and decreases from nearly $25 to $19 in the various size categories of the independent colleges. The mean, however, obscures the very large range. Average faculty salary cost per student credit hour ranged from $9.91 to nearly $62, which indicates that some colleges are spending six times more for every credit hour of instruction than other institutions in the same study. Although faculty cost per credit hour is related to institutional size, it does not diminish significantly as size of institution increases and there are a large number of institutions in all size ranges of this study with very high and very low faculty per credit hour cost. Likewise it would seem that cost, theoretically at least, would be constant across a large range of institutions. But this is not at all the case. Some institutions are paying small salaries to faculty members who are working very hard and producing more than 500 student credit hours per year. Other institutions are paying high salaries to faculty who teach few students in the course of year, resulting in very high faculty cost per student credit hour. Some institutions in the study are clearly more efficient than others and do balance pay for work produced but the great discrepancies lead immediately to questions of institutional quality, whether colleges that are spending six times as much for each credit

hour are indeed teaching students six times as much or, more importantly, whether or not students are learning six times as much in those institutions.

Career subjects are the most expensive at $26.59 per student credit hour; and the social science the least expensive, at $16.62 per student credit hour. Within the natural sciences chemistry is the most expensive subject closely followed by geology which is not offered by all institutions. In all divisions the general education subjects are the least expensive, since they are usually taken by all students in the college.

In the social sciences economics leads all other subjects followed by political science as the next most expensive. Psychology and social welfare are quite inexpensive. In fact, all the social sciences are economical in relationship to other subjects in the institutions, suggesting that expansion in the social sciences would be less expensive than in other areas. In the humanities foreign languages are quite expensive. After foreign languages, music is the most expensive major subject costing an average of $37.63 per hour. Religion, required at many of the colleges in this study, is the least expensive subject in the humanities outside the general education program.

In the career area, nursing far and away is the most expensive at $49.04 per credit hour and communications programs the least expensive. Business administration and accounting, which are large programs, along with education are very close together in cost and reasonably inexpensive at about $19 to $20 per credit hour.

The range of faculty costs per student credit hour for the major disciplines is perhaps more significant than the mean, demonstrating the tremendous difference in what colleges pay faculty. Certainly many questions can be raised about the necessity for this great range. Regardless of institutional size, beyond a certain minimal cost the difference should flatten out considerably; but it does not. Could not colleges with high faculty cost per student credit hour in a particular subject area reduce the number of faculty and increase class size and thereby reduce the cost per credit hour? Would such an undertaking jeopardize the quality of instruction or the amount of learning acquired by students? These two qualitative questions are the most critical when analyses of cost are made.

Departmental expenditures added to faculty compensation produces the total direct cost per student credit hour. Table XI takes into account, in addition to faculty compensation, all expenses for equipment, student assistance, supplies, communications and faculty departmental benefits such as travel allowances to professional meetings. This table parallels the faculty cost table throughout and reveals that the departmental costs in the natural sciences add about $3.00 per credit hour, the social sciences add about $.50 per hour, the humanities about $1.30 per hour and career subjects about $3.70 per hour to faculty costs. The largest increase is in physical education where about $4.50 is added to faculty salaries for departmental expenditure. This is extremely high and quite out of line with other aspects of these institutions. Direct costs per institution average

roughly $2.00 per credit hour more than faculty costs for 1972-73, exactly paralleling the overall additional costs in private four-year colleges.

Cost per student is another way to deal with current operational costs. In the seventy-five colleges the average income from student tuition and fees was $1,344 and the average cost per student was $2,135, indicating that the average institution had to pick up a little under $800 per student enrolled. The range of income varied from $244 to $2,994. Some of the colleges in the study charged very, very little, and no institution exceeded the cost of the selective four year colleges. The range of the costs to educate these students varied from $632 to $4,407. This range is greater than the range in income and represents a considerable disparity, which is probably not reflected in the quality of the product turned out by some of the institutions at the extreme ends of the range.

The average cost per student in each institution was determined by dividing the total current institutional expenditure for 1972-73 by the average full time equivalent student enrollment. The expenditures, drawn from institutional financial reports and audits, included all items customarily classified as educational and general: general administration, student services, public services and information, general instruction, departmental research, libraries, plant operation and maintenance. Excluded were expenditures for organized research and for programs not included in the regular academic year, such as summer and evening study if they were treated

separately, and for auxiliary enterprises, debt service and unusual capital outlay. Research was included under educational expenditures because in these institutions the only research conducted was internally supported. Almost no contractual research was undertaken. These expenditures per student figures raise questions about the economy of the institution studied. Are students in the college that spends over $3,000 on each graduate receiving twice as good an education as those in the institutions which spend only $1,500? Since tuition fees make up the largest percentage of income in the institutions with the highest charges, are some students unnecessarily overcharged and others of limited means actually deprived of a higher education by high fees that are not related to the quality of the instruction? What is the effect of high expenditures on the kinds of students the college attracts?

The great difference between institutional income from student tuition and fees and the cost to educate the same student results in the colleges' receiving an average of 62 percent of the educational cost from the student. This percent of the expenditure paid by tuition and fees excludes unfunded scholarships. Money that a college gives to students as scholarship aid from its general operating funds and for which it has no outside support is called unfunded scholarship aid. Student expenditure paid by students ranges from one percent to 125 percent. In other words, in some institutions students are paying practically none of the costs of their education, while in others they are paying 25 percent more than it costs to

educate them. Those few institutions are certainly overcharging students because they cannot help but be making a profit on income from tuition and fees. Cost per student does not seem to be related to other aspects of the educational program as will be seen later in this report. The percent of expenditure borne by tuition and fees increases as institutional size increases; larger colleges acquire a larger portion of their income from students then do the very small colleges. In fact, institutions over 600 get 84 percent of their income from student tuition and fees.

There is no optimum figure in higher education to suggest what percentage of their educational costs students should be paying. The percent of costs that students pay needs to be balanced between fluctuations in student enrollment and in the economy. Thus, a healthy percentage would range somewhere between 65 to 80 percent of income to the institution from student fees. If the figure is lower than 65 percent, the institution would suffer radically from a tight economy, particularly if it had a small endowment and had to depend upon current gifts and grants and government funding when these resources were more limited than normal. Likewise 80 percent seems to be maximum; otherwise an institution is in financial jeopardy if students do not materialize. A decrease in enrollment means that the college must gear itself for either drastic cutbacks or great increases in outside funding after commitments have already been made for the bulk of the potential income.

Cost Relationships

Over twenty different cost relationships, both statistically significant and insignificant, were examined and the most meaningful reported. Some of these relationships were expected, but others were contrary to general economic concepts reported in earlier years.

That cost per student is significantly (a=.01) related to income per student was one of the expected results. Colleges which spend more per student pass that cost on to the student in higher charges. If increased cost per student equalled increased quality of learning or satisfaction, such a practice might be justified; but there is great doubt that increased cost does equal increased quality.

In contrast to the four year private colleges there is no relationship between institutional size and income deprived from students. Likewise, cost per student is unrelated to the percent of expenditure borne by tuition. Thus the larger colleges, which should have a lower cost per student because they have the opportunity to operate more efficiently, do not necessarily pass that lower cost on to students if it exists at all. Students are as likely to pay a high fee in a large independent two year college as they are in a smaller one.

Although class size is directly related to institutional size, it is not related to cost per student. As the average class size increases costs should go down and the colleges with large classes

experiences some saving but they don't necessarily. A single school, however, may make great gains by increasing class size and reducing faculty.

Just as very little else is related to cost, the number of different concentrations offered by these colleges is not related to cost per student. In individual colleges, of course, the addition of even one concentration may make quite a cost difference if new faculty, equipment or facilities are required. But in the aggregate, no matter how many concentrations there are, cost is not directly affected.

Faculty productivity, represented by the average number of student credit hours taught per faculty member, should markedly affect the expenditure per student. In other words, colleges whose faculties teach a large number of credit hours should spend less per student than institutions whose faculty teach a small number of credit hours. This relationship was barely significant ($a=.05$), indicating that colleges with high faculty productivity generally do have a lower per student cost.

The most meaningful relationship of all - a relationship which helps to explain some of the others - is that cost per student is not related to institutional size. Although the Carnegie Commission and others have suggested otherwise, larger two year independent colleges apparently do not have lower costs than smaller ones. The schools in this study spend every dollar they can find and more without regard collectively for an optimal cost per student in relationship to size. Colleges which seek to increase enrollment

as a way of balancing the budget predicate their behavior on the assumption that increased enrollment reduces per student cost. This assumption is false for this group of colleges, although it may be true for individual institutions. Increased enrollment without other changes is part of the economic problem of the two year independent college, not the solution.

The relationship between faculty compensation and per student cost was examined. As faculty compensation increases, does the student cost also increase? In the 75 colleges studied in 1972-73 faculty salaries were not statistically related to the cost per student. This finding suggests that the other areas of expenditure determined by administrators exercise greater control over total cost per student.

A number of factors seem to be directly related to institutional size. Number of faculty, average class size, faculty-student ratio and percent of income from tuition and fees - all go up as institutional size increases. The fact that these four factors increase with size reveals that faculty work somewhat harder as size increases but do not earn more for their efforts. Students also work harder as size increases but are charged more for it. These four characteristics which relate to size suggest that management is to some extent at least cognizant of these relationships. Several of the significant variables are related to size and in the direction in which the literature of higher education predicts they ought to be. The problem, however, is that the relationships are not necessarily valid for any one institution.

Likewise, a number of factors relate directly to cost per student. The average faculty productivity and the average faculty-student ratio go up as costs go down. The faculty cost per student credit hour and the average income per student go up as costs go up. These four factors are predictive of institutional costs and should be regarded by administrators as critical variables in any effort to change the educational and general expenditures of the institution. In some of the colleges, factors related both to size and to cost are in balance, but in the majority no relationship exists among these factors at all.

Cost Formula

The critical curricular variables are related to each other and to the cost of instruction in all colleges. These variables can be examined most clearly through the use of a relational formula developed by Seymour Harris.[1] This formula demonstrates the relationship of variables over which faculty and administrators have control to the total cost of the educational program. As the formula shows, the administration and faculty can alter any one of these variables and by so doing change the others and the cost of instruction within the institution.

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[1]Seymour, Harris. Higher Education: Resources and Finance. New York: McGraw Hill, 1962. P. 519.

The formula is composed of a series of letters symbolizing each of the variables in curricular cost analysis:

1. Number of students (N) times semester student load in credit hours (L) equals total student credit hours.

2. Average class size (C) times average semester credit hours taught by teachers (F) equals average student credit hours taught by each teacher.

3. Total semester student credit hours divided by average credit hours taught by teachers equals number of teachers.

4. Number of teachers times average academic-year salary of teacher (S) equals total teachers' salaries.

5. Total year's expenditures less teacher's salaries equals overhead on teachers' salaries.

6. Overhead expressed as a relative of salary equals overhead divided by salaries (O). (Overhead stands for all costs other than salary.)

7. Thus: $\frac{(NL}{CF)}S\ (1 + O)$ = cost of instruction.

College X enrolls 500 students, who carry an average load of 15.5 credit hours. These figures are divided by an average class size of 20.5 times an average faculty credit hour load of 12.5. When these four figures are multiplied and divided, they equal the number of faculty necessary to teach in that institution. Many faculty do not realize that the number of full time equivalent persons necessary to meet an institution's commitments is based entirely on these four factors. The number of faculty times the average faculty salary, times one, plus the overhead rate equals the cost of instruction:

$$\frac{500 \times 15.5}{20.5 \times 12.5} \times \$9,553\ (1 + 1.3) = \$664,430$$

Suppose that College X increases enrollment twenty percent; the students however choose to take the same number of hours, and the faculty insists that class size is as large as can be managed and that they will not work any harder. Then those four variables multiplied and divided would require the institution to hire more faculty to meet the increased enrollment and would consequently raise the cost of instruction by many thousands of dollars. Conversely, if the faculty agreed that they can indeed teach twenty percent more students in their courses without noticing the difference, particularly since the institution has so many small classes, and none of the other variables are changed, the number of faculty needed to teach in the college goes down and the cost of instruction goes down by several thousands of dollars. Similarly changes are documented for each of the variables.

If enrollment (N) is increased 20 percent:

$$\frac{600 \times 15.5}{20.5 \times 12.5} \times \$9{,}553\ (1 + 1.08) = \$721{,}281$$

If enrollment (N) is decreased 20 percent:

$$\frac{400 \times 15.5}{20.5 \times 12.5} \times \$9{,}553\ (1 + 1.62) = \$605{,}699$$

If student load (L) is increased 20 percent:

$$\frac{500 \times 18.6}{20.5 \times 12.5} \times \$9{,}553\ (1 + 1.08) = \$721{,}281$$

If student load (L) is decreased 20 percent:

$$\frac{500 \times 12.4}{20.5 \times 12.5} \times \$9{,}553\ (1 + 1.62) = \$605{,}599$$

If class size (C) is increased 20 percent:

$$\frac{500 \times 15.5}{24.6 \times 12.5} \times \$9,553\ (1 + 1.56) = \$616,284$$

If class size (C) is decreased 20 percent:

$$\frac{500 \times 15.5}{16.4 \times 12.5} \times \$9,553\ (1 + 1.04) = \$736,651$$

If average teaching load (F) is increased 20 percent:

$$\frac{500 \times 15.5}{20.5 \times 15.0} \times \$9,553\ (1 + 1.56) = \$616,284$$

If average teaching load (F) is decreased 20 percent:

$$\frac{500 \times 15.5}{20.5 \times 10.0} \times \$9,553\ (1 + 1.04) = \$736,651$$

Rarely is an institution free to manipulate only one of these variables at a time. In most colleges they move in sets, and increases or decreases in faculty number cannot be achieved as easily as the formula implies. But the formula does suggest that every college administrator and faculty member should be cognizant of these relationships that have such direct bearing on salaries, the cost of instruction and how hard people have to work for what they are paid.

INCOME AND EXPENDITURE

Sources of institutional income and distribution of expenditures are two of the most critical factors of viability. The distribution of income and expenditures reflects administrative and faculty commitments. Colleges with large student services, for example, are quite different from those with none or very few. The distribution of income and expenditures also reflects institutional "givens." Colleges

with high plant costs usually live in mansions on large tracts of land. No college today dares let the distribution of finances occur randomly.

Seventy-five colleges submitted audits and financial profiles for 1972-73. These profiles were carefully analyzed to insure that each contained the same data for the same categories in all institutions. From these data tables were compiled which detail total institutional income and expenditure, and take a closer look at the educational and general category. These tables should be helpful to colleges which wish to compare their income and expenditure distribution with these seventy-five colleges. Caution should be exercised, however, since these tables represent only one year of operation and since the distribution by no means reflects the most desired distribution of income and expenditure expressed by numerous higher educational economists in the last decade.

Intercollegiate athletics and other educational operations are lifted out for examination in order to show how very little these colleges are concerned with either category. Likewise, admissions is lifted out of student services and development is lifted out of general institutional expenditure in order to show costs in these particular income producing areas. In addition, faculty and staff benefits are divided. In order that direct accounting and cost analysis can be made of the curriculum. The staff benefits must be separate from faculty benefits; the latter being included in direct instructional costs.

These income and expenditure data are not accurate profiles of these colleges except for the one year 1972-73. For a genuinely accurate picture, at least a three year period needs to be established which would reflect changes in institutional financing. One college in this group, for example, received a very large gift for operation and might not receive another for several years, thus a three year distribution of income would reflect considerably different percentages than for the one yearin which the large grant was received. Likewise, colleges could have unusual expenditures or postpone expenditures which would not reflect the realistic situation of the institution if presented only in a single year statement.

Table XII summarizes total current income by percentage for 1972-73 for all institutions. Grouped together the total college statement represents institutions under 1200 in the private sector of American two year higher education.

These small private two-year colleges received 68.4 percent of their income in the educational and general category. 25.6 percent for auxiliaries, 5.5 percent in student aid, only .4 percent for other educational operations and only .1 percent for intercollegiate athletics. Clearly other educational operations (a category including specialized programs funded outside the institution) and intercollegiate athletics are not viable parts of the operation of the nonselective, independent, two-year college. None of the categories of total current income appear to be affected by institutional size.

TABLE XII

Total Current Income by Percentage
For Fiscal Year 1972-73

	All Colleges	Under 200	200 - 399	400 - 599	600 & Over
Educational & General	68.4	76.7	69.4	58.0	65.0
Auxiliary Enterprises	25.6	16.9	22.9	26.6	30.1
Student Aid	5.5	6.0	7.5	4.4	4.6
Other Educational Operations	.4	.3	.1	1.0	0.0
Intercollegiate Athletics	.1	.1	.1	.0	.3
Total Current Income	100	100	100	100	100

Table XIII summarizes total current expenditures by percentage for the same group of institutions in 1972-73. Educational and general expenditure accounted for 66.8 percent of total expenditures, which averaged 1.5 percent less than income. Auxiliary exterprises expended 21.5 percent of all dollars which averaged 4 percent less than income. Student aid accounted for 6.4 percent of all expenditures, which was only about 1 percent more than income, resulting in a small amount of unfunded scholarship money, considerably less than in the private four-year colleges. Other educational operations accounted for .8 percent of expenditures, intercollegiate athletics for .5 percent of expenditures and debt service for 4 percent of total expenditures.

Educational and general expenditures are related to institutional size. The percentage of dollars spent for educational and general activities decreases as institutional size increases, suggesting that larger institutions with a greater amount of income distribute that income more broadly. Debt service, which is tied to institutional size in reverse order, is more a problem for larger institutions. As the size increases, the debt service also increases. The percentage relationship of institutional size to the educational and general expenditure and debt service, while not statistically significant, do not necessarily correlate with dollar amounts, but with the way in which the colleges distribute expenses among the various categories.

Table XIV details educational and general income for the 75 colleges. Almost 69 percent of the income came from student fees. As institutional size increases, the percentage of income from student fees also increases, partly because the larger colleges charge the

TABLE XIII

Total Current Expenditures by Percentage
for Fiscal Year 1972-73

	All Colleges	Under 200	200 - 399	400 - 599	600 & Over
Educational & General	66.8	71.4	68.9	64.7	65.0
Auxiliary Enterprises	21.5	16.3	20.0	22.6	23.7
Student Aid	6.4	6.6	8.0	6.9	4.4
Other Educational Operations	.8	2.3	.1	1.1	.8
Intercollegiate Athletics	.5	.6	.3	.1	.9
Debt Service	4.0	2.8	2.7	4.6	5.2
Total Current Expenditure	100	100	100	100	100

TABLE XIV

Educational & General Income by Percentage
for Fiscal Year 1972-73

	All Colleges	Under 200	200 - 399	400 - 599	600 & Over
Student Fees	68.9	48.5	61.1	75.2	78.9
Government Appropriations	5.4	9.2	4.2	3.8	6.5
Endowment	2.5	1.1	2.0	1.6	4.3
Gifts & Grants	14.0	29.6	19.8	11.1	5.2
Contributed Services	3.3	7.4	4.0	3.8	.5
Sponsored Research	.4	0.0	1.2	0.0	.1
Other Separately Budgeted Research	0.0	0.0	0.0	0.0	0.0
Other Sponsored Programs	2.3	1.2	4.5	1.9	1.0
Organized Activities	.8	.4	.5	.7	1.1
Miscellaneous	2.4	2.6	2.7	1.9	2.4
Total Educational & General Income	100	100	100	100	100

students a larger portion of the cost of their education. Government appropriations accounted for 5.4 percent of the educational and general income, which is more than double the proportion of government appropriations received by private four-year colleges. According to this analysis, colleges under 200, are much more dependent on government allocations than are larger institutions and will be in greater jeopardy should the appropriations be reduced or eliminated.

Two and one half percent of the educational and general income came from endownment. These colleges have very limited endowments. They rely heavily on large church contributions in the form of outright grants, pledges from denominations or individual churches, or, in the case of Roman Catholic institutions, through contributed services. These church ties constitute an endowment in the minds of many of the administrators; but church ties are no substitute for an independent stable form of income upon which the college can rely from year to year.

Gifts and grants accounted for 14 percent of the income. The amounts here reduce radically as institutional size increases - again because very large contributions are received by the very small, evangelical, Protestant colleges which receive almost 30 percent of their educational income from gifts and grants. In more selective institutions, the endowment and gifts and grants categories would be balanced in a different fashion. Contributed services accounted for 3.3 percent of the educational income and is normally representative of Roman Catholic institutions. Like gifts and grants, contributed

services income decreases as institutional size increases, revealing that many of the Catholic colleges are quite small.

These small two-year colleges participate in virtually no research, receiving .4 percent of their educational income from sponsored research and none from other separately budgeted research. Although this proportion is quite small, it is twice what the private four-year colleges get as a percentage of income. Faculty in the non-selective independent two-year colleges do not write many proposals, consequently they do not receive many grants for research which they can carry on in conjunction with their teaching.

Other sponsored programs - summer school, evening session, field activity, church conferences, and similar educational activities - accounted for 2.3 percent of the educational income. This is a very small part of the potential income that these schools might collect if they were imaginative in developing ways of expanding their normal offerings to groups of people with whom they have some affinity but normally do not serve: churches, older women in the community, veterans, and other persons with conviction and interest in the independent two-year college not now traditionally served by them.

Organized activities (a category that includes all enterprises operated by educational departments primarily for professional training such as choir concerts and field trips) accounted for .8 percent of income. Miscellaneous income (which includes current fund investments, rent from educational buildings, salvage values of equipment sold, parking fees, and conferences) accounted for 2.4 percent

of educational income. These two categories are quite openended and contain many different specific items of income in the colleges. No great reliance should be placed on the percentages in the latter two areas except to recognize that in both instances the figures are quite small.

Table XV outlines the educational and general expenditures for the 75 colleges. Instructional salaries accounted for 30.5 percent of the educational expenditures in these institutions, and instructional supplies and expenses accounted for 4 percent. Small colleges have traditionally desired to spend half of their educational dollars for direct instructional activity. When faculty benefits are added to salaries and instructional supplies and expenses, these institutions spent almost 38 percent of available educational dollars on instruction. Most independent two-year colleges still have a long way to go to reach this the 50 percent goal.

Again, .7 percent was spent on organized activities, .3 percent on sponsored research and 1.9 percent on other separately budgeted research. The average expenditures in these categories slightly exceeded average income, especially in other separately budgeted research.

Other sponsored programs accounted for 2.4 percent of expenditures. Libraries accounted for 4.4 percent, falling below the American Library Association standard of at least 5 percent of educational expenses for the library. Student services were a growing part of the educational program through the 1960's, but these small

TABLE XV

Educational & General Expenditure by Percentage
For Fiscal Year 1972-73

	All Colleges	Under 200	200 - 399	400 - 599	Over 600
Instructional Salaries	30.5	32.4	27.5	30.7	32.6
Instructional Supplies & Expenses	4.0	2.1	4.2	4.9	3.7
Organized Activities	.7	.5	.7	.9	.5
Sponsored Research	.3	.0	.6	0	.3
Other Separately Budgeted Research	1.9	.0	1.6	0	4.7
Other Sponsored Programs	2.4	1.5	3.8	3.2	.6
Libraries	4.4	5.4	4.6	3.9	4.5
Student Services	6.2	5.5	6.4	7.3	5.3
Plant Operation & Maintenance	14.9	13.8	14.0	14	17.1
General Administration	12.1	15.0	11.9	12.2	11.2
Admissions	4.7	3.8	5.6	4.6	4.3
Staff Benefits	3.0	2.7	2.7	3.4	3.1
Faculty Benefits	3.4	2.2	2.9	3.7	3.9
Development	4.3	5.0	5.4	4.2	3.0
General Institutional	7.2	10.1	8.1	7.0	5.2
Total Educational & General Expenditure	100	100	100	100	100

two-year colleges have not acquired as large a student personnel staff or engaged in as many student activities as more selective, or larger private colleges have done. They spent only 6.2 percent of their dollar for student services.

Plant operation and maintenance accounted for 14.9 percent of the educational expenditures which is the highest of any kinds of institutions in the nation. In small institutions operating with deficits, plant operation typically is the first item to be curtailed, and an examination of a single year of plant expenses does not portray the total effort as it might exist over a three-year period.

General administration accounted for 12.1 percent of the expenditures which, again, is quite high. Faculty and staff benefits together accounted for 6.4 percent of expenditures. Admissions accounted for 4.7 percent of the expenditures and development 4.3 percent. Thus, only 9 percent of total expenditures in the institution was designated for income production. This is a very small proportion ofthe dollar assigned to the two areas which produce the bulk of the institutional income.

General institutional expenditure accounted for 7.2 percent of the total educational operation and is very much in line with expenditures in other private institutions across the nation. Since small colleges tend to group in this category many items that might be distributed among other more specific accounting lines. This category represents a point of attack for administrators desiring to reduce the indirect costs of the educational program and to increase the

distribution of expenditures in instructional salaries, equipment and supplies. Interest payments on operating deficits account for far too large a portion of this area.

DEVELOPMENT COSTS

At the request of the participating colleges, one administrative office was briefly analyzed. The development office was selected for review because it is critical to institutional survival and has a good product measure. In development the success of the office is measured by the number of dollars acquired. Other administrative units have product measures; in health services, for instance, success depends on the number of people treated and in the admissions office success is measured by the number of students enrolled. Product measures require norms to give them meaning. The assessment of development is designed primarily to produce the beginnings of a normative statement about income production in the independent two-year colleges in the United States. These figures represent what occurred only in 1972-73 and there is no way to know from these data whether that was a representative year in development or whether income production from gifts and grants suffered significantly.

Any fair analysis of products of the development office in a single college requires at least a three year look in order to avoid the obvious misrepresentation that can occur in examining a single year. To assume that the dollars produced in a fat year or a lean year are representative of the effort of the development staff would be

a mistake. This study has data for only one year; but since 75 colleges are represented and since the mean is very close to the median in all the measures, these figures probably represent efforts in these institutions across the years as well as in a single year.

Obviously the development officers are not solely responsible for fund raising nor is it their only responsibility. Nevertheless, it is their primary job and is the only area reviewed in this analysis. Even though the president often is an important fund raiser, and even though faculty and student service personnel write proposals and design projects which are merely handled by the development staff on their behalf, in this survey the development staff is credited with all the successes and all of the failures.

The 75 colleges raised a mean average of $123,908 in gifts and grants and $283,135 in capital income during 1972-73 for a total of about $353,000 per institution. Gift and grant income is used entirely for operation of the educational program, but capital income may be expended for buildings, endowment or major equipment and repairs. Interestingly, size is no predictor of non-tuition income in the colleges examined. Table XVI shows that the very smallest college is as likely to get a large grant as the college of 1200. The range of gifts for operation and capital is broad in each of the size categories and reflects no pattern which in any way could suggest that those in the larger colleges have an advantage.

Because one college received nearly $5,000,000 in capital gifts, the mean is not as significant as the median. The median average

TABLE XVI

Development Office Income and Expenditure
1972-73

	All Colleges			Under 200			200 - 399			400 - 599			Over 600		
	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
Gifts & Grants	123908	109682	800-614994	116319	122891	20000-254444	140817	115827	800-411999	124087	63272	2238-614994	99191	114814	3112-212018
Capital Income	283135	63075	225-4861918	53394	21349	1504-331957	447677	61453	225-4861918	278926	117053	6075-1166541	320169	152893	26048-1141531
Total	352773	175268	800-5051259	157613	150000	20000-586401	493562	194153	800-5051259	347228	120656	2238-1313377	390254	249133	5000-1261764
Expenditure for Development	38140	27906	80-115653	19667	15000	1431-87874	40282	25650	80-115653	45687	30211	7578-114174	53296	47464	4178-102322
Ratio of Income to Expenditure	61.20	6.47	.08-2404.00	30.57	7.06	1.03-30570	135.97	6.95	.98-2404.00	16.68	4.38	.08-173.30	8.05	7.26	1.20-17.91
Percent of Educational & General Expenditure for Development	4.79	4.00	.40-21.50	5.42	4.30	.40-21.50	5.28	4.15	1.91-14.30	4.33	3.60	1.10-9.30	3.32	3.65	.70-5.97

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capital income for the independent junior colleges was $63,000 with a total gift and grant and capital income median of $175,000, which is a more accurate indicator of an average to be ascribed to this group of institutions. Several institutions in this study raised more than a $1,000,000 in capital and gifts and grants, but no institution raised more than $615,000 for gifts and grants alone - suggesting that the number of dollars which these colleges can raise successfully is perhaps somewhat limited. Knowing what colleges across the nation of the same type and size were able to accomplish should help administrators to prepare realistic projections and goals for the development staff.

The average expenditure for development efforts which includes working with alumni, public relations and fund raising, was approximately $38,000, but ranged from as little as $80 to $115,653. Expenditure for development is a relatively insignificant figure. The important figure is the relationship of dollars spent to dollars taken in. If an institution spent $115,000, for example, and took in $1,000,000, the return for the dollars spent is greater than for the institution which spends only $1,000 and took in $5,000. It is a truism to say that it takes money to make money. Far too frequently, presidents and boards of trustees have reduced development staff dollars in the belief that income would continue at the same rate with fewer staff or less material. No doubt there is an efficiency level in any development office, but it is equally true that colleges spending larger sums seem to raise more for every dollar

spent. What the optimum or maximum is has not yet been determined but surely there is one.

The really important factor is the ratio of income to expenditure. For every dollar spent on development, the median average institution brought in $6.47. The range for all institutions is extremely large due particularly to the few colleges that got quite a lot of money: from .08¢ to $2,404 for every dollar expended. Development leaders for some time have expected independent colleges to raise approximately $8.00 for every dollar they spend for development. Institutions in this study do not reach that figure, but do exceed the efforts of the private four-year colleges by about $2 for every dollar they spend.

The percent of educational and general expenditures for development averaged 4.8 but ranged from almost nothing to 21.5 percent. These few figures can guide trustees, administrators and development directors who are interested in goal setting and minimum potential. Development officers who raise less than $1 for every dollar expended, which was the case in a number of institutions, might better have remained in bed. Institutions that raised more than $8 for every dollar expended, which represented quite a large number of colleges in this study, are exemplary. Assessment of individuals in the development office, however, should not be made on the basis of a single year's effort, and new personnel most certainly should not be expected to produce a record even equal to the average small two-year college. Students of development programs say that it takes approximately three years for a development officer to produce anywhere near his capacity and

that a person should be given at least that length of time before final assessment is made of his ability to raise dollars for an institution.

This brief survey of one administrative function reveals something of the kinds of data that need to be collected in order to make judgments about administrative practices. Not only have qualitative questions been raised, but some judgments have been set forth based on normative behavior and opinions of persons fully acquainted with the practices of small colleges. Institutions interested in analyzing cost and work relationships can follow the procedure outlined in this development assessment, expand it considerably and come up with an excellent longitudinal profile of institutional behavior and production. Then a college can measure itself against the behavior of other schools and know considerably more of the extent to which an effective program is being developed for the least number of dollars.

USES OF THESE DATA

There are a number of actions most colleges can take if they have developed data comparable to those in this study or if they have been a part of any kind of cost analysis project. Each of these actions is reviewed here with some suggested strategies for full utilization of data.

Colleges can examine the number of their offerings, looking toward reducing the number of different courses offered each year in departments where more than approximately 20 hours are taught

(with the exception of the career area where the figure should be approximately 30 hours). Faculties can develop policy statements on course additions and deletions - policies, for example, that require a department to eliminate one course for every course added or policies that ask departmental faculty to justify the courses they offer on the basis of requirement for either a concentration or for general education.

Colleges can easily eliminate courses listed in the catalog but not taught for two years. Administrative and faculty persons responsible for material in the catalog can determine a policy whereby courses are dropped. One solution utilized by some schools is to eliminate all course listing from the catalog and publish an annual or semi-annual newsprint supplement that lists the courses to be offered that particular term.

Faculty committees can examine the number of concentrations. Most independent two-year colleges have developed a large number of concentrations and, as times have changed, have added to that list in the career area in particular, without subtracting many, if any. Although group concentrations in the liberal arts are increasingly unpopular because they do not appear to lead to any vocational or professional career, there are a number of combined concentrations that can be meaningful in these colleges with the large liberal arts offerings without greatly increasing institutional expenses. Career oriented concentrations are quite popular, as the two-year independent colleges are discovering. Combinations of these with the social

sciences would be particularly inexpensive. The colleges could develop new concentrations in middle management areas for city, county and state government and for service agencies such as police and fire departments, welfare, and a variety of other community agencies, including second and third level hospital administration. The role of women in banking, commerce and industry is increasing with correspondent needs for expanded concentrations which aim their programs more directly to the roles that women play in these fields today.

The financial reporting and auditing processes in many independent colleges leave much to be desired. The typical audit of the private college is not accurately or effectively stated in terms recommended by the National College and University Business Officers association. Administrators could use the data base in this cost analysis as a test of financial reporting and auditing to see whether they are getting the information they need for decision making, for cost accounting and proposal development. If not, changes in the audit and auditing firm should be instituted as rapidly as possible.

Faculty productivity can be examined on the basis of these cost data. Since faculty productivity is comprised of teaching load and class size, perhaps small classes should be eliminated - unless they are necessary for concentrations or part of a conscious program of independent study. Faculty can establish policies that courses of fewer than five or 10 students will be eliminated and faculty loads redistributed among the necessary offerings. Both policies and a

number of others increase class size without adding hours to the teaching load. As a result faculty productivity is increased, remaining faculty time can be devoted to income production and institutional cost decreased without affecting the quality of the program in any way yet determined.

Cost data can be used in program budgeting and cost accounting. Program budgeting can be defined simply or elaborately. In this instance, it can mean only that each program unit of the institution develop a budget based on the programs rather than upon traditional line items. Each program budget is comprised of several items such as staff, equipment, supplies and supporting help. Then the program area budget is developed on priorities, with the most critical programs listed first and the least important listed last. The budget committee - instead of cutting or adding a straight percentage to each area, or even less appropriately instead of putting money where the most noise occurs - can allocate institutional resources in terms of priorities established in each budget area. This means that whole programs are eliminated and others maintained at a sufficient level to operate them effectively rather than reducing the effectiveness of each program in the institution. Likewise, simple cost accounting can be instituted on the basis of these data. From this base a much more elaborate scheme of cost accounting can be developed - a scheme which takes into account all the indirect costs and establishes formulas for plant facility utilization, percentage allocating for library costs student services, and a large number of other supportive activities not included in this study.

Curricula and cost data can become the basis of long range planning and in the development of an office of institutional research. Very little more needs to be said about this possibility since it is the central use that most colleges have made of this data base and is certainly the most easily understood use by all constituent groups of colleges and universities.

The data can be used effectively by administrators to explain institutional behavior and decision making to trustees, faculty, students and alumni. Each of these groups needs to have different information, couched in language with which they are familiar, phrased in such a way that the technical aspects are removed. People can, of course, receive too much information or not enough information so that they are either overwhelmed or left wondering whether the presentation is trying to hide some factors which would not put the institution in the best light. Trustees appropriately need to know something about the base of management and are helped to understand the predicament of the independent two-year college by comparing one institution with others of the same size and purpose.

Externally these data constitute a very excellent base for proposals to foundations, corporations and government agencies. Persons who give away money are increasingly concerned about institutional management. They look carefully to see whether their funds will be well managed and will produce the desired results proposed by the college seeking dollars. To lay out in a proposal the exact accounting policies, procedures, and conclusions with comparative data cannot help but enhance the chances of being funded.

Government reports, although not all alike, can be more easily answered if the college has a good data base that can easily produce as many different categories of answers as possible. The accrediting associations, likewise, are particularly pleased to receive comparative data about institutional management; such data enhances the ability of these associations to make a judgment about the way in which a college asking for accredidation or in the process of reaccredidation has managed its institutional resources, both human and physical.

Some institutions have, of course, found additional uses for the data and have expanded on the suggestions made here. These are the primary ways in which colleges have used the data and can use them effectively. The list is sufficiently long and the record of change sufficiently strong to warrant the conclusion that all colleges should develop a program of academic and administrative analysis with cost application and follow it up from year to year with the development of a longitudinal data base.

SUMMARY

Unfortunately in the independent junior colleges of America there have been too many faculty hired, too many courses taught, too many concentrations designed, too many small classes meeting and too many administrators overseeing programs. In contrast, there have been too few students enrolled, too few dollars collected and too little credit hour productivity generated from faculty. The tendency to spend money before it is in hand, to expand programs on the basis of promise

rather than product, and to teach everyting that is known in order to be excellent has gone unchallenged in too many institutions for too many decades.

The independent two-year colleges now have a chance to reexamine themselves individually and collectively and apply practical management skills to the problems which confront them. Institutions in this study which have begun to utilize some fo the suggestions made here seem to be on the road to recovery and should be around for a long time. Others still have time to redeem themselves provided they can muster all of their energies in more than temporary activity. But some of the institutions in this report will be dissolved before another year is out. Cost effectiveness is only the first of many steps toward institutional vitality, but it is one giant step forward for institutions which desire to survive the decade as economically healthy, and educationally effective institutions of higher learning, taking their fair part in the future of American higher education.

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